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Rhinelander Paper Announces Expansion Plan

Complete Paper Machine Unit to Be Installed and Completed By July Next —Construction of Additional Building Facilities to House New Machines to be Started Immediately—The Board Votes Extra and Workers' Bonus.

[FROM OUR REGULAR CORRESPONDENT]

APPLETON, Wis., December 14, 1936—End of the year announcements continue to be made by Wisconsin concerns as to dividends, wages and bonuses. Prominent among these is the decision of the board of directors of the Rhinelander Paper Company, Rhinelander, Wis., to embark on a program of expansion. The board voted a dividend of 1½ per cent to stockholders, supplementing a previous dividend of two per cent, and a bonus to employees equal to three per cent of the wages earned by each durnig the year. The board also decided to proceed with an addition to its mill sufficient to permit installation of another paper machine. Details concerning the structure have not been announced. The Rhinelander company is a heavy producer of glassine, greaseproof and waxed wrappings and specialties.

President Folke Becker made the following statement concerning the company's plans:

"At a meeting of the board of directors of the Rhinelander Paper Company held at the office of the company on December 4, a plan for expansion was approved by the board. The plan contemplates added production facilities which will be devoted principally to the manufacture of specialty papers developed during the past three years. The volume of these specialties has grown to a point where it seemed advisable to increase production in order to efficiently take care of the increasing demand for the company's new lines of paper.

"The proposed expansion program entails the installation of a complete paper machine unit and will necessitate the employment of between 25 and 30 additional men.

"The board of directors further voted a bonus to all employees amounting to three per cent of wages earned during the year. To stockholders a dividend of one and one-half per cent was declared payable December 19, making the total dividend distribution for the year three and one-half per cent."

Work of constructing the additional building facilities needed to house the new paper machine will be started "immediately," Mr. Becker said. The new unit probably will be completely installed and in production in July of next year.

The employees' bonus is to be distributed with payment of the December 19 payroll, Mr. Becker said.

Tomahawk Kraft Paper Company, Tomahawk, Wis., has announced a wage increase of three cents an hour to 320 employees. The raise was made effective as of December 1.

Each of the employees of the Banta Publishing Company, Menasha, Wis., last week received a bonus equal to two weeks' pay. The distribution benefitted 380 workers. A year ago the company distributed the equivalent of one week's wages.

Northern Votes Dividend on Preferred

Directors of the Northern Paper Mills, Green Bay, Wis., meeting last week, authorized payment of dividends totalling $62,000 to preferred stockholders. Necessary legal steps also were taken for absorption of the Northern Electric Company, Pattern Timber Company and Cloverland Supply Company. These are subsidiaries owned 100 per cent by the Northern Mills. Steps for absorption were taken because of the fact that the Securities and Exchange Commission at Washington had classified the Northern Paper Mills as a holding company, and subject to provisions of the holding company act. Exemption from the public utility classification is asked, because the Northern states it is primarily engaged in pulp and paper manufacturing and does not derive income from its subsidiary, the Northern Electric Company. When the company built two power dams and generating plants at Amberg, Wis., a number of years ago, a separate corporation was formed. The parent company plans to assume all obligations of the subsidiaries, and has served notice on all creditors to that effect. The mergers are expected to be completed by the first of the year.

News of the Industry

A patent has been granted William P. Feeney, 417 North Durkee street, Appleton, Wis., on the design of a stock regulator. It comprises inner and outer boxes, with the flow from the inner one going direct to the paper machine, and the outer taking care of the overflow. The size of the inner box can be regulated. Mr. Feeney worked on the device for two years and applied for the patent at Washington in October, 1935. It was approved as to eight features. The owner has not assigned the commercial rights.

(Continued on page 24)

Demand for Paper Fairly Heavy In Chicago

Fine Paper Market Continues Active, With Book, Cover, Bond and Ledger Papers In Excellent Request—Kraft Wrapping Paper Moving Into Consumption In Good Volume—Sentiment In Paper Board Industry Optimistic.

[FROM OUR REGULAR CORRESPONDENT]

CHICAGO, Ill., December 14, 1936—One of the major questions asked by local paper executives is "where will the upward sweep of paper prices eventually stop?" Again this week local offices are filled with news items depicting new gains in virtually every line of paper. Again it is the kraft industry which seems to take the major share of the spotlight with the strong demand strengthening the general kraft market. Groundwoods, likewise, have bolstered their position as the source of raw materials becomes a really perplexing problem. Sulphites and sulphates again showed strength with further advances in price a possibility. The book paper market, responding to its recent advance without any appreciable slowing up in demand, had a good week, as did the cover industry. The entire fine paper market, with certain grades of bonds leading the way, gave a good account of itself. Paperboard reports were universally optimistic, while the waste market showed increasing activity as the slack in all markets was taken up to the very limit.

Association Activities

The Chicago Paper Association, progressive group of coarse paper manufacturers in Chicago, is planning to get under way in January with a purposeful program relating to local markets and to further enlarge the membership and scope of the group. Leading the association are the following officers elected last month to carry on the program for the ensuing twelve months: President, Henry Thom, Peerless Paper Company; first vice president, H. W. Borchardt, Pilcher-Hamilton-Daily; second vice president, R. E. Knox, Knox & Schneider, and secretary, James F. Danehy, Swartz Paper Company, W. Chuckerman, of J. Chukerman & Sons, becomes chairman of the board of directors. Directors serving with the above men to constitute the board of directors include Walter Schulman, of Levin Bros., and George Mix, of the Odman Paper Company.

Salesmen's Christmas Party

The Midwest Division of the Salesmen's Association of the Paper Industry has not as yet decided upon the date of its annual Christmas party but the dates have been at least narrowed down to either the Monday preceding or the Monday following Christmas. It looks as though the affair would be held at the Sherman Hotel, with Jack Burrus taking charge of the festivities. Ben Babbitt, impresario of these events, is just now successfully manipulating a recovery following an operation for removal of gall stones, though he confidently expects to be on tap for the big affair. The round table discussion on Monday, December 7, provided some interesting comment on business conditoins. Salesmen reported all mills full to capacity and ranging from one to seven weeks behind in business booked. Sulphite and sulphate papers showed continued strength with higher prices reported in sight. Kraft was up in a continued strong position with wrappings and butchers following into new firm territory.

Sulphite Division to Meet Jan. 12

An important meeting of the Sulphite Division of the industry is scheduled to be held in Chicago on January 12. While the hotel has not yet been announced it is presumed that the sessions will be held at the Drake Hotel.

News of the Industry

Earnings of the Link-Belt Company this year may nearly double the 1935 figure, according to present indications. Last year the company reported net income of $1,092,360 equal to $1.30 a share on the common stock after preferred dividend requirements. The basis for estimating 1936 earnings at a level nearly twice as high as in 1935 is found in sharply increased dividend payments combined with a reported policy of paying out virtually all of the year's earnings in order to avoid the heavy surtax on undistributed earnings.

Harold Knott, Chicago sales executive of the Eastern Manufacturing Company, has just returned from a two weeks trip through a good slice of the entire United States. Among the cities visited by Mr. Knott were Buffalo, Shreveport, Tulsa and Des Moines. The Eastern executives found business conditions very good in every territory visited.

A merchandising effort directed at the sale of Atlantic Bond stationery cabinets features part of the activity at Chicago's Eastern Manufacturing Company headquarters. The cabinets are described as useful to business concerns, students and even as bridge prizes. The value of the cabinets as Christmas gifts is also related in an interesting folder fully describing the cabinet and the Atlantic Bond contained in it.

The Division of Simplified Practice of the National Bureau of Standards has reported to Chicago offices that the current revision of Simplified Practice Recommendations R44, box board thickness, has been accorded the required degree of acceptance by the industry and is to become effective December 31. The original recommendation which became effective October 1, 1925, established gauge lists or thicknesses of the various kinds of paperboard used in the manufacture of paper boxes. The current revision is based on the current standards of the National Paperboard Association and applies essentially to changes in the thickness of various kinds of box board to meet present needs. Definitions have been added for completeness. Mimeographed copies of the recommendation may be obtained from the Division of Simplified Practice, National Bureau of Standards at Washington.

The Illinois Legislature, in special session, has passed an amendment to the Retailers Occupation Tax extending the 3 per cent rate to May 1, 1937. Without legislative action the tax would have automatically been reduced to 2 per cent January 1. The action permits those paying the tax to handle it as in the past without any change. Meanwhile, the paper industry continues to carefully analyze the now famous "printers decision" and its resultant effect of placing the tax on the paper jobber whose sale to the printer, under the recent decision, is now termed a "sale at retail" inasmuch as the printer is the ultimate consumer of the paper.

Paper Business Continues Favorable In Boston

Demand for Various Grades of Fine Paper Fairly Active—Wrapping Paper Moves Into Consumption In Substantial Volume—Box Board Market Holding Up Well—The Paper Stock Situation Shows Signs of An Improvement.

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 14, 1936.—The wholesale paper business by and large continued favorable here last week. In some quarters of the fine paper division, more activity was reported; in some others it was stated that business was fairly good, but spotty. Diploma papers moved well. Wrapping paper sold in substantial volume. The box board market held up fairly well, with many box factories pressing for shipments. New orders for box board did not come in quite so briskly and they are not expected to until after the turn of the year. Many box factories usually close Christmas week.

The paper stock market was very active as a whole, with prices strong. In old papers, hard white envelope cuttings are very much sought after, as well as new kraft cuttings. Kraft papers and kraft corrugated boxes are coming more into the picture now, although in some quarters kraft No. 1 was reported as showing less strength. Some rejections of this commodity have been made. Values of old papers were unquotably changed. Prices of bagging were all sustained. In new domestic rags, all grades except new black soft cottons and new canvas advanced fractionally. In old domestic rags and foreign rags, values were unaltered.

Robinson-Patman Act Complaint

A hearing on the first complaint alleging violation of the Robinson-Patman Act, which prohibits trade discounts, by Bird & Son, Inc., and the Bird Floor Covering Sales Corporation, East Walpole, Mass., was held December 7 and 8 in the Federal Building before Charles F. Diggs, of Washington, trial examiner for the Federal Trade Commission.

The Bird concerns, in a complaint filed by the commission on October 2, are charged with discriminating in price between competing purchasers in a sale of floor covering material to Montgomery Ward & Co., of Chicago. According to the complaint the price was not justified by the difference in costs of manufacturing, selling and delivering. Such a situation would be a violation of Section A of the Robinson-Patman Act.

Bird & Son, one of the oldest firms in New England, which operates a floor-covering factory, is charged with entering into a contract with Montgomery Ward June 10, 1936, under which it agreed to supply the mail order house with goods at prices lower than those obtainable by other retail merchants.

The hearing was adjourned to be resumed in Chicago December 10.

News of the Industry

A meeting of the Cost Finding Committee of wrapping paper merchants was held Friday in a series of fortnightly luncheon gatherings at the Boston Chamber of Commerce, with Harry J. Dowd as chairman. Problems of cost finding are discussed at these meetings. The group heard Harry Goodman, CPA, in reference to filing claims on AAA taxes paid on January, 1936, inventories.

John C. Hurd, executive secretary of the New England Paper Merchants Association, will be at the National headquarters in New York this week, consulting officials on various matters.

O. M. Barrie, vice-president of Nation Wide Papers, Inc., Chicago, was guest speaker at a sales meeting held in the offices of Carter, Rice & Co., Corp., Saturday morning. Mr. Barrie discussed the Nation Wide lines and spoke in regard to the advertising and sales promotion activities Nation Wide Papers are planning for 1937.

The Groveton Paper Company, which has a Boston office, is sold out up to February 1. The company is to give a wage increase of 10 per cent to employees at the mill, effective January 4.

Frank L. Cummings, treasurer of the New England Paper Merchants Association, is to leave for Florida shortly after Christmas, accompanied by Mrs. Cummings.

E. E. Embrie, manager of the Seattle, Wash., Division of Carter, Rice & Co., Corp., is in the East, visiting the home office in Boston.

Colonel F. L. Thompson, formerly owner of Moore & Thompson, Bellows Falls, Vt., was in town last week, calling on the trade.

New Newsprint for Color Advertising

A new advertising innovation was revealed on Wednesday, December 9, when a large local department store, the Dayton Company, published in The *Minneapolis Journal* two pages of color advertising in which no color plates were used.

This achievement was made possible by the use, as regular run paper, of a new newsprint in which the color is manufactured in the paper itself, thus ordinary white newsprint.

The method was conceived by Carl W. Jones, Publisher of The *Journal*, who, with Journal technicians and the Blandin Paper Company of Grand Rapids, Minn., conducted the experiments which made it possible for The *Journal* to become the first newspaper in America to offer this distinctive new color service to its advertisers.

Mr. Jones pointed out that The *Minneapolis Journal* does not offer this new method as a substitute for color-plate printing, but as a quick, cheap and remarkably effective complement to it. He sees in it a sensational news method by which advertisers, both national and local, may capture the attention of the buying public.

D. M. Bare Announces New Flaxon Bond

The new Flaxon Bond, a sulphite sheet of superior blue-white color and production quality, was announced in a recent broadside published by the D. M. Bare Paper Company, manufacturers of this popular sulphite bond.

According to the manufacturers, general workability and especially its non-curling qualities make Flaxon Bond a bear for press-room punishment. As is pointed out in the broadside, this keeps the presses going and speeds up production, which means greater profits. Stops cost money.

The new Flaxon Bond is available in Arctic blue-white and seven snappy colors which are particularly adapted to office forms and such work. However, the broadside, which is printed on Substance 24 Flaxon Bond demonstrates the general utility of this new paper.

Ontario Paper Industry in Stronger Position

Based Largely on the Showing of the Last Few Months, the Outlook for the Coming Year is Considered Very Good—Annual Reports Reveal Increased Production of Mills, Higher Net Earnings and Reduction of Liabilities.

[FROM OUR REGULAR CORRESPONDENT]

TORONTO, Ont., December 14, 1936—With few if any exceptions manufacturers and wholesalers of paper in Ontario are closing the best year that they have had for a long period. Turnover has been very satisfactory and with prices a little higher there would not be much to complain of. The outlook for 1937 is good and while optimistic predictions can always be more or less discounted, yet they are being based largely on the showing of the past two or three months. Annual meetings of companies, which have been held and will be held within the next few weeks, are revealing increased turnover and in most cases the net earnings are higher, working capital increased, liabilities reduced, etc. Wholesalers report that collections are better.

An index of the general advancement in not only the paper business but all lines of enterprises is presented in the report of the Dominion Bureau of Statistics which shows that for the first nine months of this year, commercial failures, which are usually recognized as a fair barometer of trade conditions, reached a new low for the past fifteen years. The total failures were 908. Another evidence of the steadily returning betterment of things in the paper trade is the advance in securities in the stock market.

The demand for all ranges of special Yuletide requirements has been away ahead of last year and a shortage is reported in some decorative lines. During the remaining days of the month of December many houses in the paper business are taking inventories and getting things in shape for next year's activities.

Abitibi Earnings Improve

A better earnings showing for the Abitibi Power and Paper Company, Ltd., whose head office is in Toronto, appears assured for the closing year 1936 as compared with 1935. It is also indicated that betterment will be revealed in 1937 over 1936 but, at that, improvement has to go a long way before depreciation and interest are earned. There are numerous rumors regarding the terms of the reorganization plans of the Abitibi company and one is to the effect that the six per cent preferred shareholders will receive one new share for five held and that common shareholders will get one new share for twenty held. At the end of 1935 the company had $48,267,000 five per cent bonds due 1953; $1,000,000 seven per cent preferred stock and $34,881,800 six per cent preferred and 1,088,117 shares of common stock. Interest on the bonds calls for $2,413,350 per annum and interest accrued at September 30, 1932 was $1,877,050. Against this profits available for depreciation and toward bond interest amounted to $1,205,185. Depreciation and depletion allowance in the years before default averaged about $1,700,000 per annum.

British Columbia Company to Expand

The market for pulp has been improving for several months and the British Columbia Pulp and Paper Company plans more expansion. The company is now selling in the United States, Eastern Canada, Japan, China, Siam, India and England. Recently the company carried out an improvement plan at its mills at Woodfibre and Port Alice. The cost was $400,000 and it has now been decided to spend half a million dollars on expansion designed to adapt production to new trends in the market.

The big call of late has been for bleached sulphite which is employed in rayon manufacture. The Port Alice mill is already equipped to turn out bleached sulphite and now the Woodfibre mill is being altered so that it will be able to produce bleached sulphite as well as unbleached which, in the past, has comprised its total output. Steam turbines for use with the existing boilers at Woodfibre have been ordered. Plans for the whole installation are now under way and it is hoped to have the work completed by the end of May next.

Dryden Outlook Bright

In his annual report to the directors of the Dryden Paper Co., Ltd., Dryden, Ont., J. H. A. Acer, president of the company, said that the kraft pulp market had continued to improve in volume and prices are now somewhat higher than last year or the earlier part of this year. Within recent months a battery of machines for the manufacture of grocers' bags has been installed and the results from this have proved to be most encouraging. The Dryden Company had the best year since 1930 and their report for the twelve months ended September 30, 1936, shows a net profit of $34,244 as compared with a deficit of $21,444 for the preceding year. The outlook for the coming twelve months is regarded as encouraging.

Spruce Falls Reduces Indebtedness

The Spruce Falls Power and Paper Company, Kapuskasing, Ont., has reduced the amount of its indebtedness on outstanding five and a half per cent first mortgage bonds by $500,000 to $8,500,000. It is understood that the company is operating at high levels of production in line with the newsprint industry in general. Although the peak production of the last quarter of 1936, is regarded to some extent as seasonal, it is expected that the company's output and revenue will increase in 1937.

News of the Industry

E. W. Mc Bride, statistician for the Abitibi Power and Paper Company, Ltd., Toronto, in a recent address before the Engineering Institute of Canada, said that if ever the time came when jack pine, of which Northern Ontario has large quantities, could be successfully used in the manufacture of newsprint, then Canada would be able to supply the world. He pointed out that at the present period spruce, balsam and poplar were being used but recent efforts had been made to see what could be done with jack pine. His remarks, which were illustrated with motion pictures, dealt instructively with the manufacture of pulp and paper.

Gordon D. Watson, John C. Abraham and Thomas B. Richardson of Toronto, are among the incorporators of the newly chartered T. J. Smith Engraving Company, Ltd., Toronto, which is empowered to do not only all kinds of printing and publishing but also to manufacture paper boxes, paper bags and envelopes.

Hutchings & Patrick, Ltd., manufacturing stationers and paper dealers, Ottawa, Ont., have commenced operations on a new plant in that city.

GET THE CLEANNESS OF TRIPLE TREATMENT

Only modern Bird Centrifining triple treats the stock. . . . Three separate and different applications of centrifugal force make for vastly more efficient removal of both light and heavy dirt. The result is *cleanest* paper. . . . May we discuss with you the effect of Bird Triple-Treatment Centrifining on *your* paper and your sales?

BIRD MACHINE COMPANY
SOUTH WALPOLE · MASSACHUSETTS

THE BIRD CENTRIFINER

YOU CAN MAKE MORE MONEY WITH NEW BIRD MACHINERY

Obituary

Frederick G. Leslie

ST. PAUL, Minn., December 14, 1936.—Frederick G. Leslie, president of the F. G. Leslie Paper Company, and one of St. Paul's outstanding business and civic leaders, died suddenly Friday afternoon at his home, 62 Grand avenue.

Mr. Leslie was born April 23, 1872, in Ballybay, County Monaghan, Ireland, one of the four sons of Mr. and Mrs. James Leslie. He was brought by his parents to this country when he was 4 years old. The family went directly to South Dakota, settling on a homestead near the present site of Mitchell. At that time the place was known as Firesteel Creek and had the only postoffice between Yankton, S. D., and Jamestown, N. D.

Reared under the rigors of pioneer life on the prairie, he formed there his love of the outdoors which was one of his outstanding characteristics. At the age of 18, he decided that business rather than farming was to be his career. Accordingly, Mr. Leslie came to St. Paul to enter a business college. To pay his expenses he worked as office boy for the Webb Publishing Company, then a small firm.

A few months later the youth began his real life's work in a job with the wholesale paper house of Wright, Barrett & Stillwell. He remained there for the rest of his college course and for several years afterward, when he became city salesman.

Meanwhile his elder brother, John Leslie, had opened a wholesale paper firm in Minneapolis and Frederick joined the sales force of that company. In 1902, with a capital of $250, he returned to St. Paul and went into business for himself at 132 East Third street.

By the end of the year his business had expanded so he had to move to another building, at Fifth and Minnesota streets. The strain of the warehouse stocks proved too much for this building and it collapsed. The stock was badly damaged and was uninsured, and Mr. Leslie lost half of his assets.

With characteristic courage, Mr. Leslie started over again, moving to Sixth and Wacouta streets. About a year later he was forced again to move to a larger building, on East Third street. After moving several more times, the company in 1916 finally was established in its present quarters, 240 East Ninth street.

Several years before that he took into partnership H. L. Donahower and the two continued the business under the name of the Leslie-Donahower Paper Company. In March, 1923 Mr. Donahower sold Mr. Leslie his interest and the company continued as the F. G. Leslie Paper Company.

Though he managed his business affairs with tireless energy, Mr. Leslie found time for numerous other activities. He was a trustee of the Minnesota Mutual Life Insurance Co. since 1908.

He was a charter member and past president of the St. Paul Rotary Club and was active in organizing the St. Paul Y. M. C. A. Participating in many forms of athletics in his younger days, he was a prominent member of the Minnesota Boat club. He also was one of the organizers of the Athletic club and held life membership No. 1. Mr. Leslie was a past president of this organization also.

The Municipal Auditorium was one of the many civic projects he added.

In addition to his widow Mary N. Leslie and other relatives Mr. Leslie is survived by a brother John Leslie, of Minneapolis, president of the Minneapolis Paper Company and Frank R. Leslie, another brother who is a Department manager in the Waldorf Paper Products Company of St. Paul.

Hammond Moore Whitney

[FROM OUR REGULAR CORRESPONDENT]

BOSTON, Mass., December 15, 1936—Hammond Moore Whitney, at the time of retirement 25 years ago vice-president of Tileston & Hollingsworth, paper manufacturers, Boston, died December 13 at his residence, 39 Carleton street, Brookline, Mass., in his 86th year.

Mr. Whitney, who was born in Hampton, Virginia, had lived in Brookline for the last 45 years. Besides various business associations, he was a member of the Union Club of Boston and the Brookline Country Club.

Two daughters, Mrs. Theodore W. Little, of Boston, and Miss Margaret Whitney, of Brookline, are living. Mrs. Catherine (Reed) Whitney, his wife, died fifteen years ago.

The funeral was held December 15 at his residence.

S. Eney Addresses Salesmen

[FROM OUR REGULAR CORRESPONDENT]

PHILADELPHIA, Pa., December 14, 1936—Summerfield Eney, printing expert of Champion Paper and Fibre Company of Hamilton, Ohio, was the speaker on Thursday evening, December 10, at the 5th lecture of the Paper Salesmen's Group, being conducted by the Paper Trade Association of Philadelphia on scheduled dates in the Chamber of Commerce Building, 12th and Walnut streets.

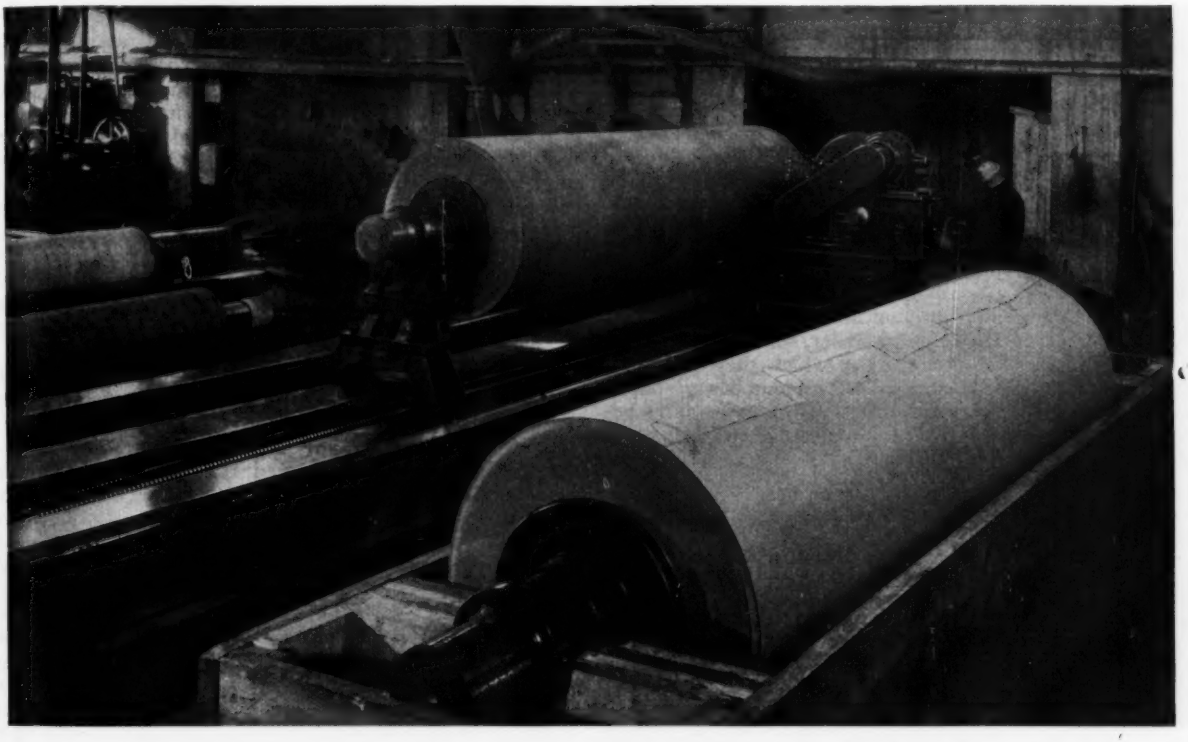
After reciting some very unique personal experiences, Mr. Eney launched into a detailed discussion on the suitability of paper to presses. He spoke of the proper method of job press feeding and stated that on heavy coated paper especially, some people in handling it make a little kink in the paper; this, he said, is wrong. On automatic feed presses, it is well to remember, he said, that all paper for automatic feeders should be trimmed on 4 sides, and on Kelly presses it is vitally important that all paper be trimmed exactly the same size for the reason that if sheet is a trifle longer on one end than the other, a bad register will undoubtedly result. Mr. Eney paid a very high tribute to the Kelly press. He continued that the new method of feeding is known as stream lined. This new type feeder instead of carrying sheet from the pile of stock almost six feet where it begins to register is carried down one lapped over the other. It is vitally important, he said, that paper be perfectly flat in order to feed it and that it be trimmed square because if sheet goes into press even slightly on an angle it will have a tendency to whip and will then fail to register.

Mr. Eney gave a very interesting demonstration of a 60-lb. sheet of the lowest grade of paper made by Champion Paper and Fibre Company which was run on a 2-color flat bed Miehle press. He displayed a number of specimens of printing on various grades of paper and pointed out the merits of each.

Wallace & Tiernan to Build Large Addition

The Wallace & Tiernan Company, Inc., Belleville, N. J., manufacturer of bleach plant equipment, liquid chlorine control apparatus, etc., for paper mill and other service, has taken bids on general contract for three one-story additions to plant, on adjoining site to be vacated by the town. The structures will total about 100,000 square feet of floor space and provide large increase in present plant capacity. Expansion is reported to cost close to $200,000, with equipment. Fletcher-Thompson, Inc., 1336 Fairfield avenue, Bridgeport, Conn., is architect and engineer.

ANY SIZE WEIGHT SERVICE



The total weight of these two Stowe-Woodward Rubber Covered Rolls comes to well over thirty tons. They are designed to serve as bottom press rolls in a special application at a West Coast mill. As the photo shows, their huge bulk puts no strain on our ample manufacturing facilities nor does it affect our ability to produce rolls with the exact density and crown to suit the service and product. Whether your specifications are standard or highly unusual, you can be sure that Stowe-Woodward Rolls will deliver long, trouble-free service with a minimum of regrinding and attention.

STOWE-WOODWARD, INC.
NEWTON UPPER FALLS • MASSACHUSETTS
NEW YORK OFFICE • WOOLWORTH BUILDING

Makers of WHITE STAR *Rubber Covered Rolls,* TANNITE *Couch Rolls*
STONITE *Top Press and Smoothing Rolls—All by the* COREWELD *Process*

The Institute of Paper Chemistry Wants Paper Trade Journals

The Institute of Paper Chemistry, during the six years of its existence, has been able to build up a rather imposing library of some 6,000 volumes, including a large number of paper making periodicals. However, the library is handicapped because of its inability to secure complete files of the trade journals devoted to the pulp and paper industry. For example, our file of the PAPER TRADE JOURNAL consists of volumes 64 to 68 (1917-1919) and volumes 76 to date (1923-). It seems impossible to purchase volumes previous to 1917 or volumes 69 to 75 from second hand book dealers or any other source.

Because of the value of these early volumes of the PAPER TRADE JOURNAL to the Institute, and because of the close relationship of the Institute to the industry, an appeal is being made to the readers of the Journal to assist the Library in completing its files. It is entirely possible that some of the men who have been associated with the industry for a long period of time have, in their homes or at their mills, complete or partially complete files of the PAPER TRADE JOURNAL which they would be willing to donate or sell to the Library. It would be a real service to the industry if anyone who may have any of the desired volumes would communicate with the Librarian of the Institute, Miss Edith Stroschneider, stating the volumes available and the conditions under which they would be willing to dispose of them. A certain number of duplicates can be used, because the Institute is constantly being asked by other libraries for assistance in completing their files.—CLARENCE J. WEST, Editor.

Bird & Son Announce Bonuses

Bird & Son have sent out the following notice which applies to all the employees of the firm throughout the United States, including plants at Phillipsdale, R. I., Norwood, Mass. and Chicago, Ill.

"We are glad to announce a semi-annual service bonus distribution on December 23, 1936: Those who on December 31, 1936 have been in continuous service of Bird & Son, Inc., for over five years will receive 4 per cent of their normal six months' earnings. Those whose service has been over two years, but less than five years, will receive 2 per cent. This service bonus is based on normal six months' earnings, figured as 26 weeks (of 40 hours) at the present rate of each individual.

"We also announce a bonus in addition to the service bonus: Regardless of length of service, every individual in our employ on December 31, 1936, will receive a special 4 per cent bonus. To those with one year or more of service, the bonus will be based on the normal yearly salary or normal wage rate, figured as 52 weeks of 40 hours each. To those with less than one year of service, the bonus will be based upon the normal earnings for the time employed, figured upon the basis of a 40-hour week.

"Both bonuses will be payable on December 23, 1936.

"We believe that the present volume of business will continue through 1937, and that it will be more satisfactory to the members of our organization to anticipate additional compensation which might be made at the end of the year and make it available at regular intervals in the form of a wage increase. We are glad, therefore, to announce the following wage policy, effective January 2, 1937:

"Hourly wage rates in all departments will be increased 5 per cent. Piece work rates will be revised on a sliding scale, with this 5 per cent increase as a maximum.

"Salary rates for the clerical force will be increased 5 per cent."

RHINELANDER ANNOUNCES EXPANSION

(Continued from page 17)

Representatives of labor unions of the pulp and paper industries in Wisconsin and Upper Michigan held a meeting at Rothschild, Wis., last week. They discussed wages, job classifications, workmen's compensation, bonuses, cost systems and use of union labels. D. C. Everest, vice-president and general manager of the Marathon Paper Mills Company, Rothschild, was the speaker at a dinner held in the evening. His subject was "Employee and Employer Relationships." Several of the union officers also gave short talks.

Sixteen men have enrolled in a newly organized class in pulp and paper making at the vocational school at Appleton, Wis. The class will meet one night a week for eight weeks. L. J. McNamara is the instructor.

An illuminating analysis of the trend from analytical to synthetic chemistry and the place it has gained in industry was given by Dr. B. L. Clarke, of the Bell Telephone laboratories, New York City, at a meeting last week of the Northeastern Wisconsin Section of the American Chemical Society at the Institute of Paper Chemistry, Appleton, Wis. The use of papers in performing tests was described and the reaction of indicator papers was shown by charts. Dr. Clarke also made experiments with a small electrolysis apparatus.

C. Paul Irvine of Chicago, addressed the Wisconsin Valley Engineers Club at a meeting last week at Wausau, Wis. Thirty were present. Mr. Irvine first showed a talking film depicting various uses of Micarta board, a phenal-formaldehyde laminated resin product. The development of the laminating industry was traced from its inception thirty-five years ago as a result of the vision of George Westinghouse and the work of Dr. Leo Baekeland. Various samples were shown. Questions and an interesting discussion followed.

Recovery of $4,096 by the Consolidated Water Power and Paper Company from the Soo Line is recommended in an examiner's report to the Interstate Commerce Commission. The company seeks to recover this amount for allegedly excessive charges on wood pulp delivered by railroad to the Interlake Pulp and Paper Company of Appleton, Wis., one of the Consolidated's branch mills.

Clarence O. Baetz, formerly assistant engineer of the Fox River Paper Company, has been employed by the City of Appleton, Wis., to become superintendent of its new municipal sewage disposal plant, now nearing completion. Paper mills have been connected with the system to stop industrial pollution of the Fox River.

John Brennan Passes On

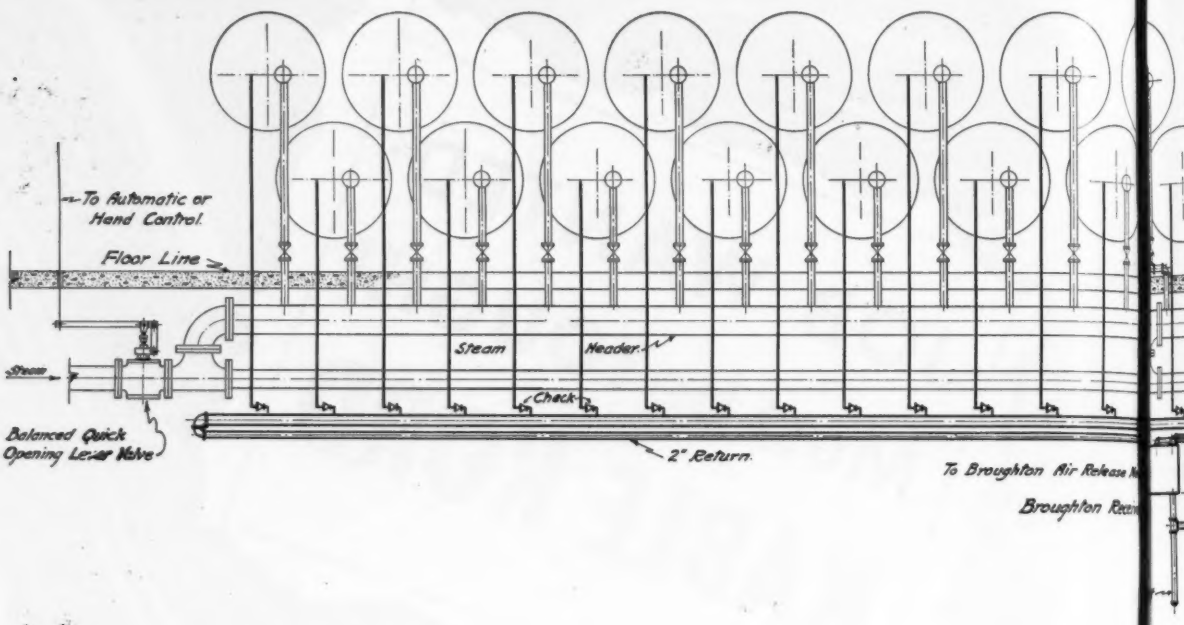
John Brennan, Sr., 83 years old, one of the pioneers of early lumbering and paper mill days, died December 10 at his home at Wisconsin Rapids, Wis., following a stroke. He came to Wisconsin from Fall River, Mass. with his parents in 1861 and was identified when a young man with several well known lumber companies. He became foreman during construction of the original mill of the Neekoosa-Edwards Paper Company when the firm was known as the Nekoosa Paper Company. He remained as mill foreman for eleven years. He stayed with the company three successive reorganizations as the Northern Paper Company and the Nekoosa-Edwards Paper Company. He continued his employment with the latter until his retirement four years ago. His wife preceded him in death last August. Burial was made in Calvary cemetery at Wisconsin Rapids.

What can Kable Kord do for you? Get the FREE Kable Kord Data Book, without obligation. Send today, to start saving tomorrow.

IT takes the tough jobs, to *prove* that Kable Kord has the stuff. Kable Kord likes those heavy-duty drives that show up other belts. It lasts longer, grips flat pulleys tighter, slips less, and *delivers more actual pull per square-inch than any other flat belt made.* It gives two-belt power-performance because it's built like "two-belts-in-one." That's why Kable Kord cuts costs. That's why it's a sensation!

L. H. GILMER COMPANY, Tacony, Philadelphia

BROUGHTON DRAINAGE SYSTEM



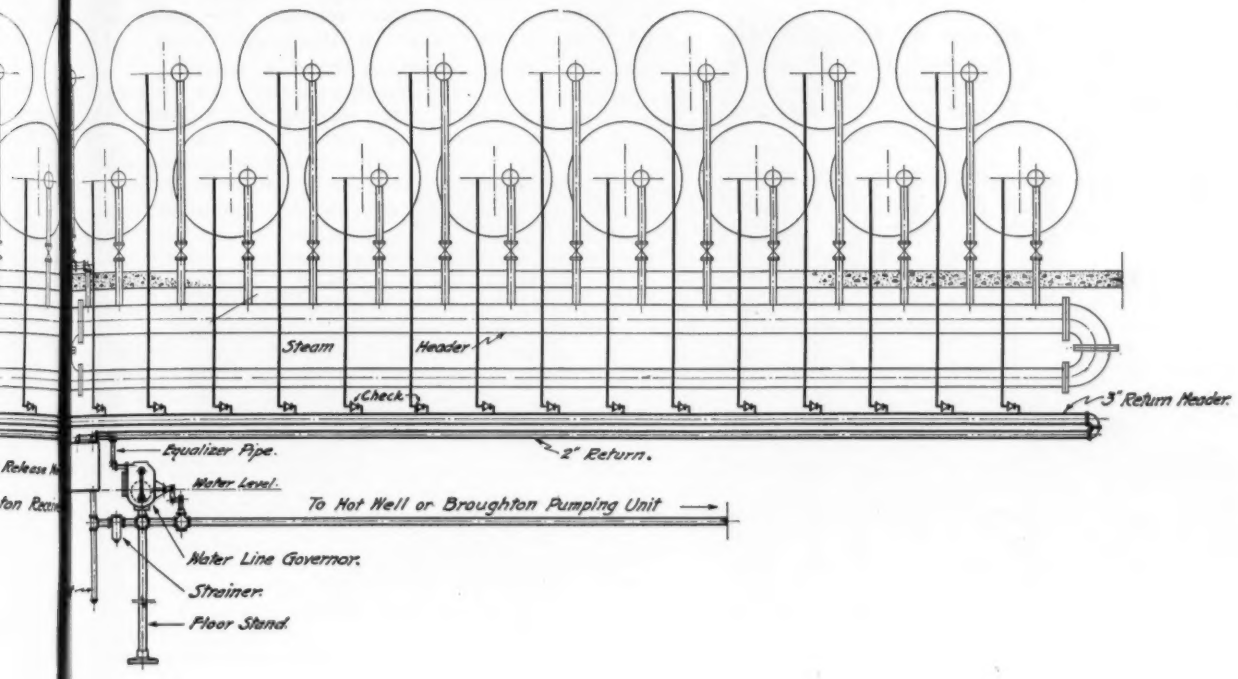
Accomplishments

1. It will save at least ¼ pound of steam per pound of paper made and usually much more, regardless of what other method is employed.
2. It will increase the capacity of the paper machine to dry from 5% to 15%.
3. It will remove the condensate evenly and constantly at the same temperature as the steam in the dryers and in most cases will deliver this condensate at the steam temperatures direct into the hot-well without the use of pumps, traps, or intermediate mechanisms.
4. It will reduce the steam pressure on the steam supply header.
5. It will permit the starting up from a cold machine to full operating drying capacity in not to exceed twenty minutes and without losing a pound of steam or of condensate.
6. It will increase the life of the machine dressing due to better dried felts.
7. It will expel the air from the dryers and pipes completely and automatically.
8. It allows each dryer to be an individual by itself, nature setting up a condition of pull on each syphon more powerful and complete than the finest vacuum pump ever built.

U. S. Patent No. 15

A. E. BROUGHTON

E SEMS FOR PAPER MACHINES



nts Broughton Systems

9. Its installation is the cheapest by far of any other scheme or system ever devised because of its simplicity and lack of necessity for large piping.

10. It allows a paper machine to be operated one pressure straight through from end to end or any combination of pressures that the mill operators require.

11. It allows the entire separation of exhaust from live steam in the paper machine.

12. It eliminates all maintenance charges because there are no traps or mechanics of any kind to get out of order.

13. It allows the use of the specially constructed Broughton Pump and Metering unit, where a pump is required, which will deliver the condensate to any desired point, at the temperature of the steam in the dryer regardless of what it may be, and without the use of any cooling water whatsoever.

14. Due to the fact that no steam ever escapes with the condensate removed, it permits the weighing accurately through a specially constructed turbine meter of all the machine condensate and, therefore, records can be kept of exactly how much steam is used.

n Patent No. 259270

TAND COMPANY

Glens York

Government Paper Bids and Awards

[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 16, 1936—The Government Printing Office has announced the following paper awards.

For 28,990 pounds of 75 per cent rag lithograph map paper awarded to the R. P. Andrews Paper Company at 13.47 cents per pound. The Whitaker Paper Company will furnish 15,000 sheets of 22 x 28 white railroad board at 4.80 cents per pound. Bids for these items were received on November 25.

The Virginia Paper Company will furnish 11,500 pounds of 22½ x 28½ single ply white sulphite index at 5.94 cents per pound, bids for which were received on November 23.

Barton, Duer & Koch Paper Company will furnish 8,400 pounds of 22½ x 28½, 50 per cent rag white index single ply at 12.74 cents per pound, bids for which were received on November 13.

The Sanford Paper Company will furnish 2,110 pounds of 24 x 38 white dull coated paper at 8.148 cents per pound and the Paper Corp. of the U. S. will furnish 80,000 pounds of supercalendered book paper at 4.73 cents per pound. Bids for these items were received on November 11.

The Whitaker Paper Company will furnish 3,400 sheets of 20 x 25 blue gummed paper at $9.60 per M sheets and the Resolute Paper Company will furnish 3,000 pounds of No. 1 gummed kraft paper in 24 rolls at 7 cents per pound. Bids for these items were received on November 6.

Reese & Reese will furnish 10,000 sheets of 22 x 28 gray photo mount board at $35.23 per M sheets, bids for which were received on November 4.

The Printing Office has received the following bids for 35,000 pounds (200,000 sheets) of single coated book paper; John F. Post, Inc., 6.86 cents per pound; Whitaker Paper Company, 7.01 cents and 6.86 cents; Stanford Paper Company, 6.66 cents and 6.51 cents; R. P. Andrews Paper Company, 7.01 cents; Barton, Duer & Koch Paper Company, 7.04 cents; and Old Dominion Paper Company, 6.6 cents.

Price Bros. Financing Plans

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, QUE., December 14, 1936.—The routine of foreclosure plans in the case of Price Bros. & Co., now in bankruptcy, is now being carried out by the trust company acting on behalf of the bondholders. It is not expected here in view of the new plan of financing submitted on behalf of the shareholders, that foreclosure will actually be effected. There is necessarily considerable red tape in such proceedings, including the advertising for sale of the property for four weeks in newspapers in Montreal, New York, and London. Naturally the trust company has no discretion in this matter and must carry out the instructions of the trust deed.

The shareholders or the company acting on behalf of the shareholders, will still have practically up to the advertised date of sale an opportunity to stop all proceedings by paying off the bond obligations as well as the sum owing to the creditors. Meanwhile, interested parties here are looking forward to the calling of a meeting of the shareholders in connection with the scheme of arrangement submitted on their behalf some two weeks ago, in opposition to the one submitted by the Pacona interests, failure to accept which has started the foreclosure proceedings.

B. C. Paper Co. To Spend $500,000

VANCOUVER, B. C., December 12, 1936.—A $500,000 development program will be launched in the very near future by the B. C. Pulp and Paper Company, to adapt its production to new market trends. The company operates mills at Port Alice, on Vancouver Island, and Woodfibre, on Howe Sound, in British Columbia.

While contracts for the installations have not yet been awarded, plans are now under way, and it is hoped to have the work completed by the end of next May.

At the Woodfibre mill of the company equipment will be installed to produce bleached pulp as well as unbleached, and steam turbines to be used in the new operation have already been ordered. This program, which may be followed by further expansion in accordance with the development of the market, has been dictated by the improvement in the market for bleached sulphite, which is already produced at the company's Port Alice mill.

Lawrence Killam, president of the company, states that prices for bleached pulp are considerably higher than those for unbleached, the chief outlet for sales being in the foreign market. He added that for several years a superior product has been developed by Canadian mills, and a ready sale has been found in the United States, England, Japan, and elsewhere. A gradual improvement in the pulp market has been noted, with competition continuing strong.

The present $400,000 expansion program planned by the company is in addition to the improvements made earlier in the year at both mills, which amounted to about $400,000. These improvements included installation of a new conveyor system at Port Alice, and extensive changes to the mechanical facilities at both mills.

Rolland Common Stock Listed

[FROM OUR REGULAR CORRESPONDENT]

MONTREAL, Que., December 14, 1936.—The common stock voting trust certificates of the Rolland Paper Company of Montreal have been approved for listing by the governing committee of the Montreal Stock Exchange.

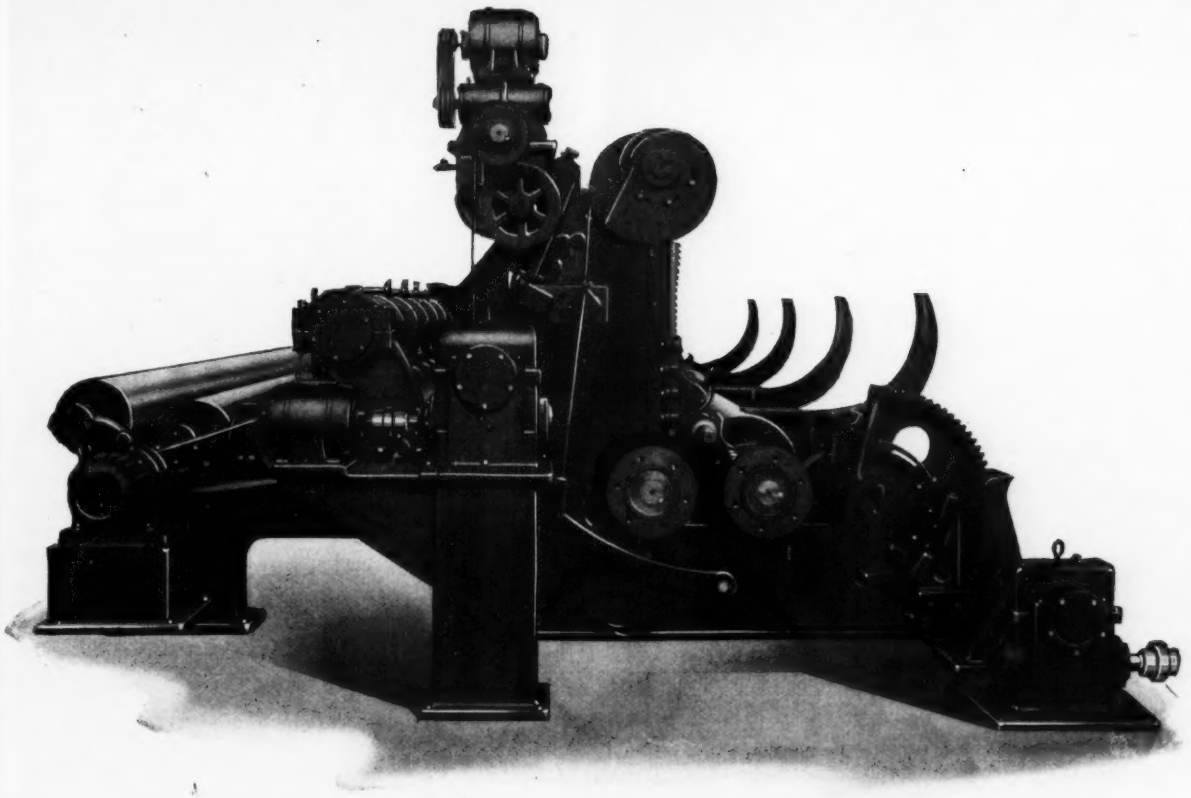
The listing covers the common stock and voting trust certificates representing 34,500 common shares of no par value, all of which are outstanding in the hands of the public, with authority to add voting trust certificates covering 25,501 additional common shares.

The capital stock of the company consists of 100,000 shares of no par value common stock of which 60,001 shares have been issued and are outstanding. A total of 34,500 shares are at present represented by voting trust certificates. In addition the company has an authorized issue of 25,000 shares of $100 par value of 6% cumulative redeemable preferred stock of which 15,000 shares are outstanding. The preferred shares were listed on the Montreal Stock Exchange on November 15, 1934.

To Start Construction at Fernandina

The directors of Container Corporation of America, at a meeting held on December 1, 1936, approved the company's plans to build a Southern kraft mill at Fernandina, Florida. Construction of the first unit for pulp production will be started immediately and officers of the company have just returned from Fernandina, where final details were completed.

The company will not require any new permanent financing in this connection, as the construction program has been planned within the cash resources prospectively available, amplified by moderate short term construction loans.



A MODERN HIGH SPEED WINDER

• THE DESIGN of the modern BAGLEY & SEWALL Winder is a distinct departure in design and construction from the accepted types formerly used. The present day requirements of increasing speeds call for accuracy of balance, more sensitive control and convenience of operating. Particularly, this is true on the wider machines, although the same design and workmanship is a definite asset on machines of moderate widths and speeds. The modern winder requires no manual labor from the time the sheet is started until the finished roll is deposited on the floor.

FRAMES of low, heavy box-section type.

HIGHEST speeds without vibration.

AUTOMATIC unloading device.

ELECTRIC push-button controls.

ANTI-FRICTION bearings throughout.

DYNAMIC balance of all revolving parts.

ADJUSTABLE spacing between winding drums.

INDEPENDENT perfectly controlled rider roll.

COMPENSATING counter-balance for weight of rolled paper.

LIGHT weight winder shafts.

SLITTER position controlled from front side.

Automatic winder drum safety guard.

Adjustable spreader for positive control of sheet.

THE BAGLEY & SEWALL CO. - WATERTOWN, N. Y.

Grandfather Falls Expansion Plans

MERRILL, Wis., December 14, 1936.—A few weeks ago announcement was made that the Grandfather Falls paper mill had been sold to Joseph M. Ward of the Detroit Sulphite Pulp and Paper Company, and that manufacturing operations would be resumed as soon as repairs had been made and new machinery and equipment installed.

Repair work has been progressing as rapidly as possible and already over $40,000 worth of new equipment for the Number 1 machine has been ordered. At the present time all efforts are being directed to getting this machine in running order.

Two engineers from Orbison & Orbison of Appleton, leading paper mill engineers, have been making a complete survey of the plant and laying out improvement and expansion plans for the future.

According to Mr. Ward who has been in the city for several weeks and who has established residence here, the start of manufacturing operations depends on the ability to get the new equipment and will probably be three or four months hence.

In addition to that already ordered more machinery will be sent for next week and a total of $150,000 will be expended for new equipment, by the time Machine Number 2 has been installed.

Medium and heavy weights of the highest grade sulphite paper will be manufactured at the local plant. When production starts it is expected that about 100 men will be employed. From 80 to 90 per cent of the help used will be chosen from residents of this city.

In a recent interview, Mr. Ward who for several years was president of the Sulphite Paper Manufacturers Association of the United States, and who is a director and member of the executive committee of the Detroit Sulphite Pulp and Paper Company, gave several reasons why Merrill was chosen as the site for manufacturing operations.

"Good water," Mr. Ward said, "is of vital importance in the manufacture of paper and I consider the water of the Prairie river as good as any water—outside of well water—that can be found in the United States.

"I was pleased," he added, "with the friendly and co-operative spirit of the people of Merrill."

Mr. Ward made a survey of the Grandfather Falls plant and found it in acceptable condition. Freight rates were checked and found to be very favorable for the products to be shipped to any part of the United States.

"For these reasons," said Mr. Ward, "Merrill was selected as the site for our manufacturing operations."

To Start Converting Plant at Carthage

CARTHAGE, N. Y., December 14, 1936. Announcement is made here that operations will be started in the new converting plant of the National Paper Products Company within a few days. The structure has been under construction for the past several months on a site adjoining the West End branch and as soon as it is completely finished the company plans to concentrate manufacturing and finishing activities. The new building has been constructed according to structural design which will provide production, beginning with the manufacture of paper from raw materials on the bank of the river and ending with the finished towel and tissue products boxed and ready for shipment in a section. The new plant is 360 feet long and 220 feet wide being divided into three sections of equal size. The entire structure is of brick and one story in height. The center section is built of structural steel truss, the end sections being of wood timber framing. Hollow tile partitions separate the sections. Floors are of reinforced concrete.

Lawrence Expands Chemical Laboratories

KEWAUNEE, Wis., December 14, 1936. Lawrence College is undertaking a complete rehabilitation of its chemical laboratories with the purpose of providing modern laboratories on a par with those of any educational institution in the central West, according to an announcement made by the Kewaunee Manufacturing Company, Kewaunee, Wis., who have been retained to provide new laboratory furniture and equipment throughout the department.

The program contemplates a complete modernization of the interior of the present quarters of the Department of Chemistry in the Stevenson Hall of Science, including floors, walls, ceilings, lighting, partition work, and the installation of thoroughly modern mechanical services which will provide every possible modern convenience to the laboratories.

The laboratory furniture and equipment throughout will embody the latest technological advances in the laboratory furniture industry, and has been designed with a view of securing for Lawrence College one of the best equipped groups of chemical laboratories available in the educational field.

A qualitative and General Organic Laboratory, a Quantitative and Physical Chemistry Laboratory and an Organic Chemistry Laboratory are included, as well as completely modern Stock Departments, Private Laboratories, Dark Room, Preparation Rooms, Balance Rooms, Reception Lobby and a very attractive and well equipped Lecture Room.

The national interest which has been aroused by the accomplishments of the Institute of Paper Chemistry, affiliated with Lawrence College, and the outstanding graduate and research work of the Institute have tended to make Lawrence a center for chemical education, and the new laboratories in the Stevenson Hall of Science, it is expected, will greatly further activity in this department of the College.

President-elect Thomas N. Barrows, who succeeds Dr. Henry M. Wriston as president of Lawrence College and Director of the Institute of Paper Chemistry, is manifesting the same keen interest in the development of the Institute as was shown by his predecessor, and he is actively identified with the movement to provide Lawrence College Laboratories comparable in efficiency with the splendid laboratory facilities available at the Institute.

Ask Exemption From Holding Act

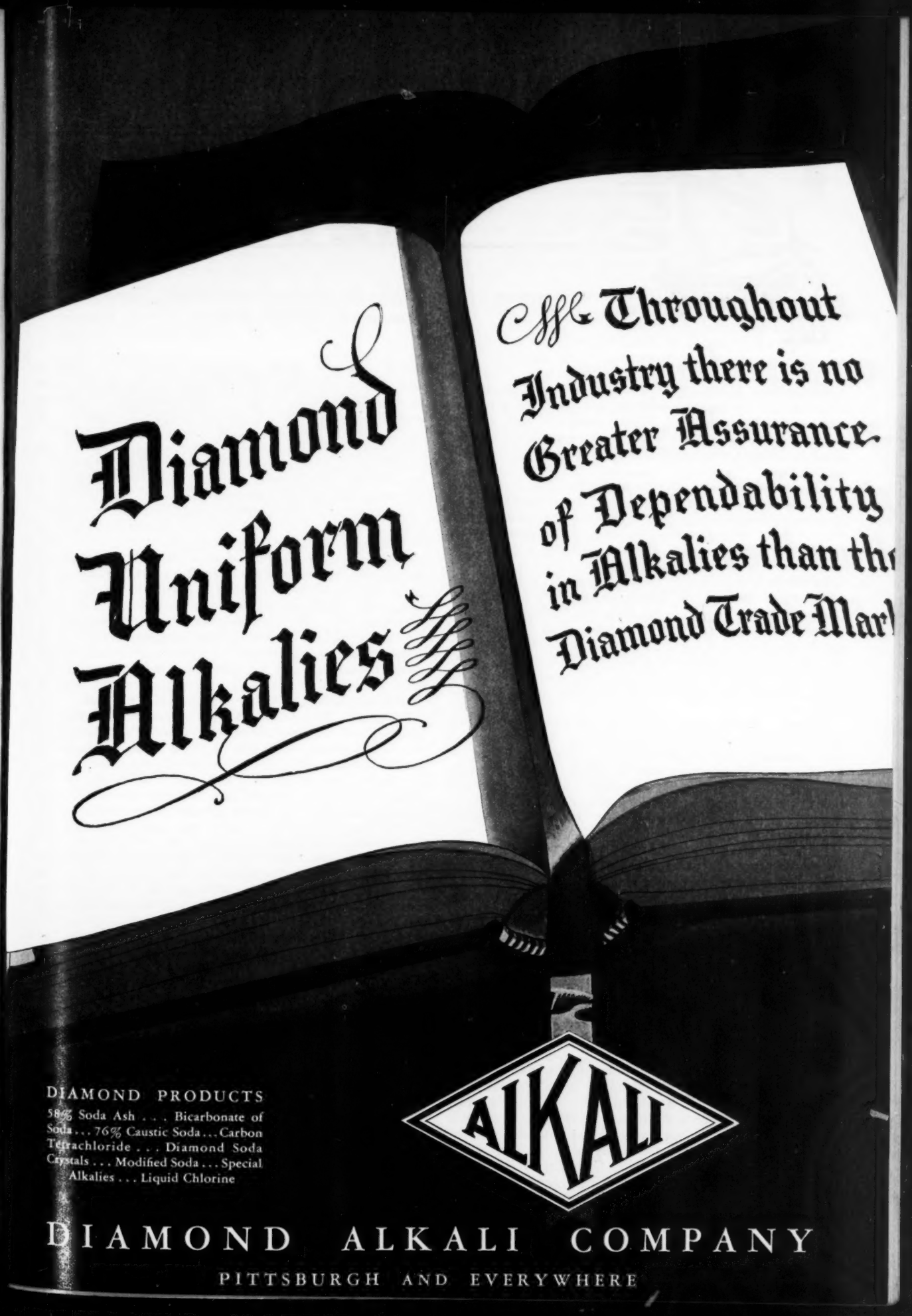
[FROM OUR REGULAR CORRESPONDENT]

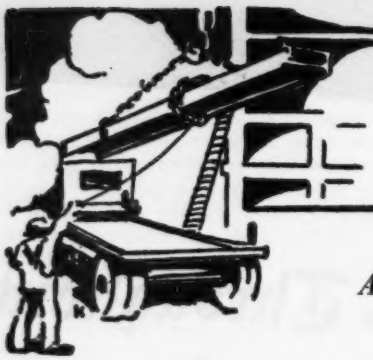
WASHINGTON, D. C., December 16, 1936—The Northern Paper Mills and the Northern Electric Company, a subsidiary, both of Green Bay, Wis., have jointly filed application with the Federal Securities and Exchange Commission for exemption from the Public Holding Company Act of 1935 under section 3. The Northern Paper Mills contends it is only incidentally a holding company, being primarily engaged in a business other than that of a public utility company.

To Represent Magnus Co. in Maine

Mr. Leon Smith has been appointed resident sales representative to cover the state of Maine for the Magnus Chemical Company, Garwood, N. J., manufacturers of cleaning materials, industrial soaps, sulfonated oils, emulsifying agents and metal working lubricants.

Mr. Smith was chosen because his past experience in the industrial field qualifies him to be of real service and to render valuable aid to those concerned with cleaning and allied process operations.


Diamond Uniform Alkalies
Throughout Industry there is no Greater Assurance of Dependability in Alkalies than the Diamond Trade Mark
DIAMOND PRODUCTS
58% Soda Ash . . . Bicarbonate of Soda . . . 76% Caustic Soda . . . Carbon Tetrachloride . . . Diamond Soda Crystals . . . Modified Soda . . . Special Alkalies . . . Liquid Chlorine
ALKALI
DIAMOND ALKALI COMPANY
PITTSBURGH AND EVERYWHERE



CONSTRUCTION NEWS

A Summary of Vital Facts Regarding Construction, Finances and Operation of Paper Mills

Construction News

Rochester, Mich.—The Colonial Paper Company, manufacturer of paper specialties, has approved plans for new one-story plant, for which superstructure will be placed under way at early date. It is reported to cost close to $40,000, with equipment. William O. Stronach is president.

Chicago, Ill.—The American Corrugated Box Company, 1011 West 21st street, recently organized with capital for 100 shares of stock, no par value, plans operation of local plant for manufacture of corrugated paper boxes and containers. A. Henry Goldstein, 1 North LaSalle street, is company representative.

Elkhart, Ind.—The American Coating Mills, manufacturers of folding box boards and kindred board products, has approved plans for two new additions to mill, each one-story, 48 x 175 feet, and 36 x 72 feet, respectively, to be used for expansion in pressing division, storage and distributing departments. Cost over $50,000, with equipment. General contract has been let to Ira C. Mast, Elkhart, and work on superstructure is scheduled to begin at early date.

Detroit, Mich.—The National Automotive Fibres, Inc., 19925 Hoover place, manufacturer of fiber products for automobile service, has awarded general contract to O. W. Burke Company, Fisher Building, Detroit, for new one-story addition to mill, for which superstructure will begin at once. Cost estimated close to $100,000, including machinery. Hugh Miller & Co., 7467 Grand River avenue, are architects.

Franklin, Va.—The Chesapeake Corporation, West Point, Va., manufacturer of kraft paper products, is said to be considering preliminary plans for new pulp and paper mill on site at Franklin, in vicinity of lumber mills of Camp Manufacturing Company at that place, and will utilize waste material from that plant for pulpwood service. Proposed mill will comprise several large units for pulp department and paper-making division, estimated to cost close to $2,000,000, including machinery. Elis Olsson is president and general manager.

Charleston, S. C.—The West Virginia Pulp and Paper Company, 230 Park avenue, New York, N. Y., is pushing construction of new pulp and paper mill on large tract of waterfront property on Cooper River, near Charleston, recently acquired. Foundations have been laid for practically entire group of initial buildings, and steel frame superstructure is in progress on a number of units, including the digester and diffuser building, screen room and chip house. Company has awarded a number of contracts for different features of erection, as well as equipment installation. Pusey & Jones Company, Wilmington, Del., has the award for paper-making machine and it is expected that assembling of the unit at plant will begin in March. Electric power equipment, motors, etc., will be furnished by the Westinghouse Electric and Manufacturing Company, East Pittsburgh, Pa., and General Electric Company, Schenectady, N. Y.; all tankage equipment will be supplied by the Chattanooga Boiler & Tank Company, Chattanooga, Tenn.; screen room machinery award has been made to the Improved Paper Machinery Company, Nashua, N. H.; Jordan equipment will be furnished by the Noble & Wood Machine Company, Hoosick Falls, N. Y.; the Goslin-Birmingham Manufacturing Company, Birmingham, Ala., has the award for evaporators, and the D. J. Murray Manufacturing Company, Wausau, Wis., for chipper equipment, barking drums, etc. Boiler units will be supplied by the Babcock & Wilcox Company, New York, N. Y. The Morton C. Tuttle Company, Park Square Building, Boston, Mass., is general contractor.

Chicago, Ill.—The Continental Envelope Corporation, 429 South Ashland avenue, recently organized with capital of 1000 shares of stock, no par value, will operate a local paper-converting plant for production of commercial envelopes and allied products. The incorporators include George Kaplan, A. J. Geller and Saul S. Dorfman.

Ilchester, Md.—The Bartgis Brothers Company, manufacturer of manila wrapping papers and other paper stocks, has arranged for sale of block of 20,000 shares of preferred stock and 25,000 shares of common stock, a portion of proceeds to be used for expansion in mill for increase in present output. As recently noted in these columns, company has plans for new two-story mill unit, and will begin erection at early date. Improvements will be made in present plant.

Bogalusa, Ala.—The Gaylord Paper Bag Company, manufacturer of kraft paper bags and containers, plans early rebuilding of portion of local plant, recently destroyed by fire. An official estimate of loss has not been announced.

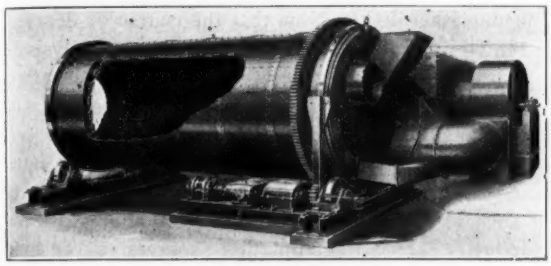
Toronto, Ont.—The Dixie-Vortex Company, Ltd., manufacturer of paper cups and kindred paper products, representing a recent merger of Dixie Cup Company and Individual Cup Company, 100 Sterling road, and the Vortex Company, 593 Adelaide street, West, is concentrating operations at first noted location, where ground floor space has been leased. A total of 22,000 square feet of space will be occupied for the consolidated interests. The Vortex Company plant is being removed to the Sterling road building.

Bury, England—The New Bury Paper Mills, Ltd., Gigg Lane, has approved plans for new additions to mill, to be equipped for large increase in present capacity. Project is reported to cost about $500,000, including machinery. Contract for buildings has been awarded to J. Greenwood, Inc., affiliated with Huntley Saw Mills, Ltd., Bury, and work will begin soon.

Link-Belt Rotary Louvre Driers

Announcement is made by Link-Belt Company, 300 W. Pershing Road, Chicago, that it has acquired the manufacturing and sales rights for North America for the Dunford & Elliott rotary louvre drier, of which many installations have been made in Europe, Canada and Japan.

It is being offered for the drying of all types of granular materials, coarse or fine, or of irregular shape, size and consistency; all types of crystals and powders manufactured or used in the chemical industry; factory refuse and waste; vegetable products, etc. It has also been employed as a heating or cooling unit; as a general reaction vessel; and for evaporating liquids on a solid substance. Among the materials handled are coal, coke, clay, fertilizers, grain, ores, cereals, salt, sand, sugar, wood chips and bark, cement clinkers and all manner of chemicals.



ROTARY LOUVRE DRIER

The drier is described briefly as a mechanically rotated horizontal drum with a series of internal channels near the circumference, into which hot air is admitted with a fan. These channels are covered by tangential plates which overlap in such a way as to leave a gap for hot air to pass from the channels into the inside of the drum and into the material contained therein, and at the same time to prevent any materials from falling back into the channels. The channels are tapered so as to give the inner lining of the drum a gentle slope from the feed end to the discharge end. As the drum revolves, fresh channels come underneath the charge, but, as the hot air can only enter the channels when they are actually underneath the charge all the gases must pass upwards through the bed of material.

It is said that the design of the rotary louvre drier, combined with the gentle mixing action to which the bed is constantly submitted by the slow rotation of the drum, causes the hot air to come into intimate contact with every part of the bed, resulting in efficient heat transfer and uniform drying.

Link-Belt lays claim to having built driers of various types for at least 20 years, and will send any interested reader a copy of its new 4-page illustrated book No. 1511 covering rotary louvre driers.

Moross Paper Co. To Open Stockton Branch

T. V. Moross Paper Company, wholesale dealer in fine paper, established in 1926, 9-11 Commercial street, San Francisco, Cal., has opened a branch warehouse at Stockton, Cal., in their own building 110 Hunter street and will carry a line of high grade bonds, ledgers, writing, bristols, wrappings, bags and specialties.

Mr. Moross is a well known business man of Stockton who was formerly of the firm of J. A. Moross & Son, contractors who built the Stockton, San Joaquin County Court House, built of granite, one of the most prominent Court House buildings in central Cal.

IPI Color Guide

A new "Color Guide" containing a range of the colors most useful to paper manufacturers along with information on proper color selection and application is being distributed by the International Printing Ink Corporation.

T. M. Cleland, prominent New York illustrator, designed a special cover for the Color Guide. It introduces a personified hue circuit with girls in dresses of many different hues circling around a three-dimensional "IPI."

IPI's new Guide, which supersedes the Color Pageant, is not an ink specimen book. According to its producers, it is designed to be a practical reference chart that can be used in selecting colors and appropriate color application. Colors are not labeled with trade names or formula number. Instead, three-dimensional color designations, numerically classified appear beneath each color shown.

By following the numerical designations for each color, users have a simple method of establishing suitable color relationships. For example, in selecting two colors to be used in type matter and background, respectively, it is essential that there be sufficient contrast in value to assure good visibility. A difference of at least 30 steps in the numerical value designation is given as the minimum for good visibility. So the printer can easily pick his colors to conform to this rule by merely observing the numerical value shown underneath the color samples.

A discussion of color relationships and an explanation of the numerical system for designating color is given on a page of information which is included in the Color Guide. Also on this page are directions for getting the best use from the Guide, a description of spectrophotometric color analysis, and data on ink selection and matching. A chart showing the results of property tests on the common ink pigments as to permanence and chemical resistance qualities should be helpful to printers of packages, labels, cartons, posters, or any material subject to deteriorating effects.

E. D. Flynn Made Chief Engineer

Oliver United Filters, Inc., announces the appointment of E. D. Flynn as chief engineer of the company, with headquarters at Oakland, Calif. He will direct engineering for both the Oakland, Calif., and Hazleton, Pa., factories.

Mr. Flynn, a native of Michigan, is a graduate of the University of California and has been continuously associated with the company since 1917. His experience in the filtration field is very wide, comprising engineering, design, field service, sales and executive. His work has brought him in contact with all the major processing industries.

Immediately prior to his transfer to Oakland as chief engineer, he was in charge of the Central Sales Division with headquarters at the company's Chicago office.

L. K. Larson to be Manager of Sales

R. B. Wolf, manager of the Pulp Division of the Weyerhaeuser Timber Company, announces the appointment of L. K. Larson, as manager of sales for the Division, with offices at 230 Park avenue, New York City.

The New England Office under the direction of Henry F. Bigelow is located in the Bank Building, Clinton, Mass.

William A. Geiger and William N. McNair, with offices at 400 West Madison street, Chicago, Ill., represent the Pulp Division in the middle Western states.

PAPER TRADE JOURNAL

ESTABLISHED 1872

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COMING EVENTS IN THE PAPER INDUSTRY

AMERICAN PAPER AND PULP ASSOCIATION, Sixtieth Annual Convention and meeting, Waldorf-Astoria Hotel, New York, February 22-26.

TECHNICAL ASSOCIATION OF THE PULP AND PAPER INDUSTRY, Convention, Waldorf-Astoria Hotel, New York, February 22-25. Annual Luncheon, Waldorf-Astoria Hotel, Thursday, February 25.

SALESMEN'S ASSOCIATION OF THE PAPER INDUSTRY, Annual Meeting and Luncheon, Waldorf-Astoria Hotel, New York, Tuesday, February 23.

NEW YORK ASSOCIATION OF DEALERS IN PAPER MILL SUPPLIES, Annual Banquet, Hotel Commodore, New York, February 24.

NATIONAL PAPER TRADE ASSOCIATION OF THE UNITED STATES, Convention, Waldorf-Astoria Hotel, New York, February 22-26.

CANADIAN PULP AND PAPER ASSOCIATION AND SECTIONS, Annual Meeting, Montreal, January 27-29.

TECHNICAL SECTION, CANADIAN PULP AND PAPER ASSOCIATION, Annual Meeting, Montreal, January 27-29.

NEW ENGLAND SECTION, Technical Association of the Pulp and Paper Industry—Third Friday of each month at the Nonotuck Hotel, Holyoke, Mass.

DELAWARE VALLEY SECTION, Technical Association of the Pulp and Paper Industry—Fourth Friday of each month at the Engineers Club, Philadelphia, Pa.

LAKE STATES SECTION, Technical Association of the Pulp and Paper Industry—Second Tuesday of each month at the Conway Hotel, Appleton, Wis.

KALAMAZOO VALLEY SECTION, Technical Association of the Pulp and Paper Industry—First Thursday of each month at the Park-American Hotel, Kalamazoo, Mich.

AMERICAN PULP AND PAPER MILL SUPERINTENDENTS ASSOCIATION, Annual Meeting, Springfield, Mass., June 23-25.

INDUSTRY'S OBLIGATION

Speaking recently before the congress of American Industry, C. M. Chester, president of the National Association of Manufacturers praised the record of industry in absorbing unemployment. He asserted that employment among the member companies of the National Association of Manufacturers was actually 106 per cent of the 1929 level instead of the 90 to 95 per cent generally estimated. These figures were based upon a canvass of the N.A.M. membership in which returns were received from firms employing nearly 1,500,000 people—one sixth of the people at work in manufacturing industry.

At the same time he cautioned the industrialists against resting on their laurels in this respect. "Our job is to absorb all of the unemployed possible—to bend every effort of science and management skill to create still more jobs—and at the same time more of the comforts of life for the American people," he said.

In this connection Mr. Chester recommended specifically that Industry join in the creation of a "National Depression Study Committee" to analyze the causes of the receding depression in an effort to eliminate the business cycles or make them less severe.

"The results of such studies," he said, "as well as the long experience of trained men—all the acumen and resourcefulness that the nation's business possesses—should and will always be available to our government to the end that another period of business disruption and subsequent human suffering may be eliminated or at least mitigated.

"Industry cannot just sit back and enjoy the fruits of prosperity. We must understand better what has been happening since 1929. Now that the course of depression lies behind us, lending itself in its entirety to analysis, it is the job for industry, general business and all affected sectors of our economic life to join in creating a National Depression Study Committee."

At the same time, Mr. Chester urged that the natural processes of recovery be allowed to operate and warned that such legislation as the arbitrary 30-hour work week for industry would interrupt this progress. "We cannot get more by producing less," Mr. Chester said. We cannot get more by dividing the same amount of work. Multiplying products—creating more things—this is the American formula for prosperity."

In outlining his suggested program for the consideration of the assembled executives, Mr. Chester placed first on the list industry's acceptance of its responsibility for the national welfare "as being an even higher duty than the successful operation of private business."

Other points were listed in the following order:

"2. Industry must continue to fulfill its obligations to the public in making better goods at lower cost, thus raising the standard of living and keeping the door of personal opportunity open.

"3. Put every possible employable in manufacturing industry back to work.

"4. Keep its own house in order, exposing its policies at all times to public scrutiny.

"5. Stand four-square against monopoly.

"6. By its actions engender growing confidence on the part of workers.

"7. Invite increasing public understanding of industry by telling the facts.

"8. See that workers, management and investor, according to their contribution, share fairly in the proceeds of manufacturing.

"9. Help to create economic security for all, preserving as well the opportunity for the individual to attain his own greater security.

"10. Zealously live up to its responsibilities and insist that all other factors of our economic life, including labor organizations be made equally responsible.

"11. Make its cooperation available to government in a constructive manner at all times.

"12. Join other business groups in studying the depression in order to avoid or minimize another one."

In praising industry for the progress it had made in re-employment, Mr. Chester recalled the situation that prevailed when NRA was invalidated and the predictions made at that time that business would cut wages, increase hours and pursue other unfavored practices. At that time, he said, the National Association of Manufacturers canvassed its members and assured the public that industry was not going to backslide.

"It is a matter of record," Mr. Chester said, "that industry kept its word. Business gains since NRA went out of existence have been among the most pronounced in history. The record shows that on the average there were no wage reductions.

"The average weekly earnings, which mean more than the hourly rate to the worker have increased 15 per cent. Under the NRA the high point of employment in all occupations was 85.9 per cent of the 1929 figure. Today the gainfully employed in all occupations is 92.8 per cent of 1929."

In referring to the gains that manufacturing industry had made in employment Mr. Chester said:

"It is evident that if the average company today is employing more men that it did before the depression, the only possible explanation for a smaller total employment is that less companies are now in business. And this is actually the case.

"Full and increasing employment will be stimulated by the better flow of capital into development of necessary new industries. Since total employment is as closely related to the number of employing companies, these figures emphasize the need for sufficient reserves to see our factories through bad times."

Heads Universal Paper Products Co.

Walter J. Hamlin has resigned as vice-president and director of the Dixie-Vortex Company, Chicago, and has been elected president of the Universal Paper Products Company, 140 S. Dearborn Street, Chicago.

Before the merger of the Individual Drinking Cup Company, of Easton, Pa., and the Vortex Cup Company into the present Dixie-Vortex Company, Mr. Hamlin was vice-president and director of the Vortex Cup Company. In that capacity, he was responsible for much of the early pioneering in the paper drinking cup business, and for its development during the past twelve years. The new company now under Mr. Hamlin's direction manufactures cone-shaped drinking cups, known as Veecups, on a somewhat different principle than ever before attempted. The Universal Paper Products Company will merchandise its cups and its own dispensers through the usual jobbing channels.

Rubber Covered Roll Prices to Advance

Stowe-Woodward, Inc., Newton Upper Falls, Mass., announce that there will be an increase in prices of rubber covered rolls effective January 1, 1937. This upward revision, the company indicates, is made necessary because of increases in the prices of raw materials, higher wage scales and other factors entering into manufacturing costs.

Production Ratio Report

These statistics are based upon paper production reports to the American Paper and Pulp Association.

COMPARATIVE MONTHLY SUMMARIES

Months	1936	1935	1934
January	76.1%	65.8%	.....
February	77.9%	70.0%	.....
March	76.0%	70.5%	.....
April	82.3%	70.0%	.....
May	81.6%	69.4%	.....
June	80.7%	72.3%	.....
July	77.3%	65.0%	.....
August	81.5%	70.9%	.....
September	80.5%	71.9%	56.8%
October	87.6%	75.6%	64.7%
November	88.0%	75.3%	61.7%
December	.....	71.2%	59.5%
Year	.....	70.5%	.....

COMPARATIVE WEEKLY SUMMARIES

CURRENT WEEKS, 1936		CORRESPONDING WEEKS, 1935	
*November 7	87.0%	November 9	75.5%
*November 14	87.6%	November 16	75.2%
*November 21	89.5%	November 23	76.9%
*November 28	87.8%	November 30	73.5%
*December 5	90.0%	December 7	76.0%

The following statistics show the number of mills reporting by ratio groups:

	Number of Mills Reporting, Current Weeks				
Ratio Limits	Nov. 7, 1936	Nov. 14, 1936	Nov. 21, 1936	Nov. 28, 1936	Dec. 5, 1936
0% to 50%	55	58	52	77	39
51% to 100%	275	268	271	242	184
Total Mills Reporting	330	326	323	319	223

* Subject to revision until all reports are received.

PAPERBOARD OPERATING RATIOS

According to reports from the National Paperboard Association, per cents of operation, based on "Inch-Hours", were as follows:

Months	1936	1935	1934	Months	1936	1935	1934
January	61%	61%	....	July	69%	59%	....
February	67%	67%	....	August	75%	65%	....
March	68%	67%	....	September	76%	69%	62%
April	70%	61%	....	October	82%	76%	63%
May	68%	61%	....	November	....	70%	56%
June	68%	65%	....	December	....	60%	52%

Week ending Nov. 7, 1936—79%
Week ending Nov. 14, 1936—81%
Week ending Nov. 21, 1936—80%
Week ending Nov. 28, 1936—75%
Week ending Dec. 5, 1936—78%

Paper Industry Not Officially Represented

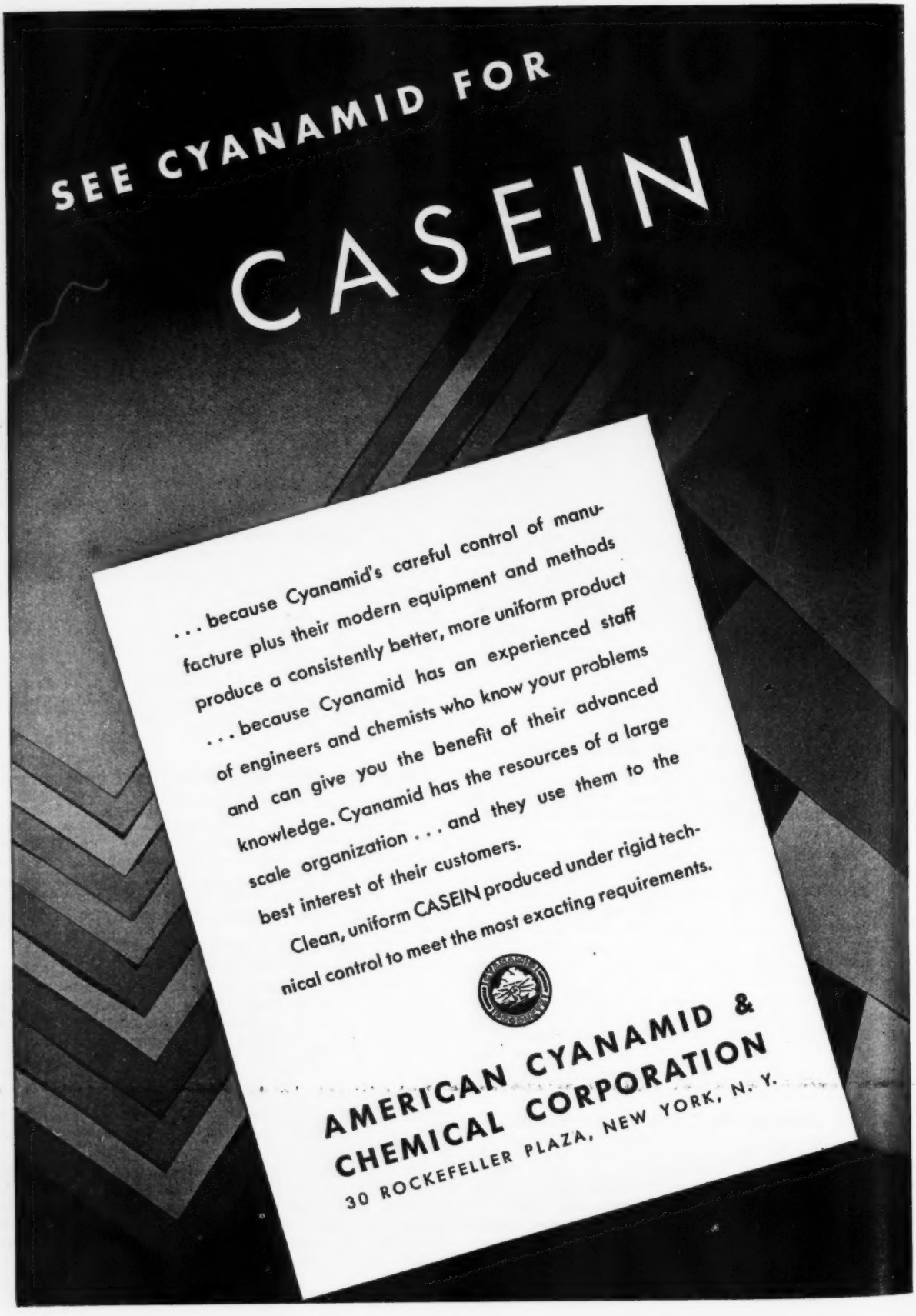
[FROM OUR REGULAR CORRESPONDENT]

WASHINGTON, D. C., December 16.—The paper industry, as such, was not represented here last week at the two day session of the Berry Council for Industrial Progress. There was no registration and so it is impossible to name names, but it is understood that representatives of some branches of the paper industry were in attendance in their individual capacity.

As the net result of the conference, a committee will meet here shortly to formulate legislation which the Council expects to submit to Congress either directly or through the President. Also Major Berry has announced that he might call another meeting of the full council here in January to take final action on the recommendations which the committee draws up preparatory to its submittal to Congress.

Claim is made by the Berry organization that while there were only two hundred members of the Council before the conference last week that now there are eight hundred members.

The Council meeting itself was very much cut and dried. On the first day there was an attendance of about 1,000 persons. It was an open conference and speeches were made on a routine program. This was followed on the second day by a meeting in executive session when committee reports were adopted and resolutions passed.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Section of the
Technical Association of the Pulp and Paper Industry
Edited by Ronald G. Macdonald, Secretary

Lakes States Section Meets

The December meeting of the Lake States Section of the Technical Association of the Pulp and Paper Industry, was held at the Valley Inn in Neenah, Wisconsin on Tuesday, December 8 at 6:30 p. m. J. P. Hagenauer of the American Paper and Pulp Association was the speaker.

Dr. Hagenauer with George Ware has been operating a comparative reporting service sponsored by the American Paper and Pulp Association. Selecting for his subject "The Problems Involved in the Analysis of Operating Data to Determine Furnish Efficiency" he discussed in general the amounts of the various furnish materials lost between the beater and the dry end of the paper machine. By presenting his figures in a very unusual manner Dr. Hagenauer forcefully called to attention the very large losses within these limits. An interesting discussion followed his speech.

Chairman J. R. Fanslow announced that the January Meeting would be a symposium on bleaching and the February meeting a symposium on sizing.

Those Present:

L. G. Barlow, Crane Company, Oshkosh, Wis. H. W. Bialkowsky, Gilbert Paper Company, Menasha, Wis. H. K. Babcock, Mosinee Paper Mills Company, Mosinee, Wis. E. B. Brookbank, Institute of Paper Chemistry, Appleton, Wis. Martin Burke, Jr., Limestone Products Company Menominee, Mich. L. A. Carpenter, Bergstrom Paper Company, Neenah, Wis., W. C. Christensen, Hoberg Paper Mills, Inc., Green Bay, Wis. R. C. Crain, Whiting-Plover Paper Co., Stevens Point, Wis. H. C. Crane, Fannon Trading Company, Appleton, Wis. Sigge Ekman, Rhinelander, Paper Co., Rhinelander, Wis. W. J. Fahrenkrug, Badger Paper Mills, Peshtigo, Wis. W. A. Fannon, Fannon Trading Company, Appleton, Wis. J. R. Fanselow, Kimberley-Clark Corporation, Neenah, Wis.

G. R. Gemtes, Kimberley-Clark Corporation, Kimberley, Wis. W. B. Giese, Hoberg Paper Mills Incorporated, Green Bay, Wis. L. A. Gilbertson, Marathon Paper Mills Co., Menasha, Wis. J. P. Hagenauer, American Paper and Pulp Association, New York, N. Y. J. A. Hanson, Badger Paper Mills, Marinette Wis. H. T. Holbrook, Wadhams Oil Company, Milwaukee, Wis. Ray Hollands, Marathon Paper Mills Company, Menasha, Wis. W. F. Holzer, Rhinelander Paper Company, Rhinelander, Wis. E. C. Jacobi, Standard Oil Company, Green Bay, Wis. W. A. Johnson, Hoberg Paper Mills, Inc., Green Bay, Wis. H. S. Johnston, Fox River Paper Company, Appleton, Wis. R. J. Kennedy, Rhinelander Paper Co., Rhinelander, Wis. I. W. Kersten, Kimberley-Clark Corporation, Kimberley, Wis. M. J. Killian, Combined Locks Paper Company, Combined Locks, Wis. R. E. Kissel, Hoberg Paper Mills Company, Green Bay, Wis. Otto Kress, Institute of Paper Chemistry, Appleton, Wis. G. H. Krohn, Globe Steel Tube Company, Milwaukee, Wis. Stephen Kulolich, Neenah Paper Company, Neenah, Wis. E. M. Leavitt, Thilmany Pulp & Paper Company, Kaukauna, Wis. F. R. Lillie, Crane Company, Chicago, Ill. Jack Limpert, Kimberly-Clark Corporation, Kimberley, Wis. Hoke Martin, Paper Makers Chemical Company, Kalamazoo, Mich. E. O. Meyer, Flambeau Paper Company, Park Falls, Wis. E. P. Miller, Hoberg Paper Mills, Inc., Green Bay, Wis. Howard Morgan, Institute of Paper Chemistry, Appleton, Wis. C. R. Morse, Wisconsin River Paper and Pulp Company, Stevens Point, Wis.

L. A. Moss, Institute of Paper Chemistry, Appleton, Wis. C. H. Nystrom, Northern Paper Mills Company, Green Bay, Wis. J. E. O'Donnell, Independent Rubber Company, Appleton, Wis. K. E. Pinkerton, Combined Locks Paper Company, Combined Locks, Wis. W. J. Plank, J. J. Plank & Company, Appleton, Wis. I. F. Pohlmeyer, Globe Steel Tube Company, Milwaukee, Wis. J. B. Roskams, Hoberg Paper Mills Inc., Green Bay, Wis. Robert Rusch, Institute of Paper Chemistry, Appleton, Wis. C. E. Saecker, Appleton Machine Company, Appleton, Wis. C. R. Seaborne, Thilmany Pulp and Paper Company, Kaukauna, Wis. R. M. Sensenbrenner, Geo. A. Whiting Paper Company, Menasha, Wis. F. K. Shankweiler, Paper Makers Chemical Company, Kalamazoo, Mich. F. G. Sherman, E. F. Houghton & Company, Appleton, Wis.

J. A. Staidl, Thilmany Pulp and Paper Company, Kaukauna, Wis. M. S. Taylor, Northern Chemical Company, Green Bay, Wis. G. M. Thompson, Jr., Gilbert Paper Company, Menasha, Wis. R. W. K. Ulm, Institute of Paper Chemistry, Appleton, Wis. I. R. Valentine, Jr., Fox River Paper Company, Appleton, Wis. E. H. Voigtman, Kimberley-Clark Corporation, Neenah, Wis. A. G. Wakeman, Fox River Paper Company, Appleton, Wis. D. B. Wicker, Thilmany Pulp and Paper Company, Kaukauna, Wis. A. D. Wilkinson, Kimberley-Clark Corporation, Kimberley, Wis. Earl R. Williams, Neenah Paper Company, Neenah, Wis. H. Voss, Mosinee Paper Mills Company, Mosinee, Wis.

Ace Paper Co. Moving to Larger Quarters

The Ace Paper Company, formerly located at 127 Bleecker street, New York, is moving to larger quarters at 426-428 West Broadway, where the concern will occupy the entire building.

Instrumentation Studies. I

A Report of the Central Grading Committee of the American Pulp and Paper Association

Foreword

On August 10, 1934, The Paper Industry Authority authorized an appropriation "to be expended by the Central Grading Committee at its discretion over a period of not less than one year in the development of suitable testing equipment." The Committee presents herewith a series of reports accruing from the study which was inaugurated with this fund.

The work was done by the official testing station, The Institute of Paper Chemistry, Appleton, Wis. It was felt that the staff and equipment of that institution, along with its experience gained in the performance of hundreds of thousands of tests for the Divisional Associations, gave it a unique and invaluable background for such a study.

The first section of the report discusses the philosophy and method of approach and the fundamental properties of paper; it briefly abstracts the detailed studies that were made of certain properties and instruments. These detailed studies are presented in the following series of papers.

There were two different phases to the instrumentation program. First, there were certain instruments that were urgently needed in grading committee work, and developmental studies were begun immediately on these. As a result, precise methods for the measurement of gloss and formation are now commercially available. The second phase of the program, which proceeded concurrently with the first, had for its objective a thorough evaluation of all existing instruments and testing techniques. This involved, of course, a fundamental study of the properties of paper. In addition to studies of a number of existing instruments, this phase of the program has already contributed three new instruments.

Obviously, it is impossible to cover a field as extensive and fundamental as this within a period of slightly more than a year. A very commendable start has been made, however, and it is hoped that the study will be continued so that full advantage can be taken of this early work.

The industry must eventually measure all of the properties of its product by instruments which are approved by the industry itself. The purchasing public was made more specification conscious than ever before by the NRA. Specifications and instruments of doubtful quality are being developed by consumers at an increasing rate. The expense to the industry of living up to such specifications and instruments will be infinitely greater than that involved in developing and following the measurements of instruments which have been approved by the American Paper and Pulp Association.

CENTRAL GRADING COMMITTEE

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F. A. CURTIS
HARRY FLETCHER
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M. A. KRIMMEL
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JOHN G. STRANGE, *Secretary*

INSTRUMENTATION PROGRAM

Progress Summary

As the request of the Central Grading Committee of the American Paper and Pulp Association, The Institute of Paper Chemistry undertook a broad survey of instruments available for the measurement of the properties of papers and boards. The Committee realized not only the importance of having a complete background of information as to what had been done in the field of instrumentation but also the value of collecting in one place complete and accurate data on the work already done, before proceeding with further exploratory investigations.

APPROACH AND METHOD OF ATTACK

In approaching such a comprehensive field, it is necessary to forget many of the traditional concepts of paper properties, and to analyze anew paper as a chemical and physical structure, whether it be tissue, board, or any one of the many other grades.

Forgetting for the moment all relations to use and adaptation, it is easily obvious that paper *per se* possesses many distinct properties. Their relative importance varies: some are important only in specific grades; others are important in several grades; but many others may be important in all grades. In any one grade, the quantitative value of some few or more of these properties determines the particular sheet's suitability for the use to which it is put. Yet, in the past, instrumental and other testing methods have usually been adopted to measure the suitability of the sheet for a particular use without considering the fundamental properties that influence the measurement. Moreover, many instruments have been developed for the evaluation of specific grades without consideration of the grade structure as a whole and without co-ordination with the whole picture of paper property evaluation. Frequently, the use of such instruments has spread to other grades where the results may be influenced by properties that are not important. In short, much in the field of paper testing is misleading. The Central Grading Committee soon realized that grading of paper was impossible if the means of measuring grade standards were inaccurate. The Committee was forced, therefore, to turn immediately to the fundamentals.

Quality or property grading, when introduced as a part of marketing methods, must be organized with an industry-wide scope. It must employ methods which have been developed in relation to an integrated understanding of the fundamental properties of paper. The relationship and interpretation of important paper properties in the different grades must be recognized, and the correlation of these properties with the results obtained with any testing instrument or technique must be accurately known. Many grades overlap. They compete with other grades and in numerous cases with many other grades. It is basically essential, then, that integrated methods of evaluation be used.

To grade a property in terms of one instrument or tech-

nique for one type of paper and to evaluate the same property in terms of another instrument or technique for another type of paper adds to the confusion and prevents sharp delineation of the different grades. This is espeis only by development of a clear understanding of the cially true where it is impossible to establish correlation factors for the different instruments or techniques. It fundamental properties which influence testing results that meaning will be given to the application of the various instruments to the different grades.

Inevitably, the grading programs of all divisions of the industry will converge. Therefore, the only sound procedure is to anticipate this by having a common knowledge, of properties and the means of measuring them, and by using the developments of each group or division in building the whole structure, each part of which strengthens the other. The problem has never been approached from this viewpoint. Such an approach demands that instruments and techniques be developed with this same spirit of integration, and with an appreciation of the interrelationship of the various papers.

Therefore, the approach to the problems must be accomplished in a fresh manner, determining the fundamental properties of a sheet of paper, analyzing their importance, and discussing the necessity for their measurement. Having done this the instruments and techniques available should be reviewed and those which fit the integrated picture selected. Deficiencies will become apparent; a list of these will form an outline for the logical development of new instruments and techniques.

After selecting suitable instruments and methods from the existing array, and after developing the necessary new means for evaluating the various fundamental properties, the next step would be to determine in which properties and to what degree the specific grades differ from each other. The exact establishment of these differences and the provision of instruments and methods for their determination would then provide the open sesame to a sound structure.

In this manner the problem of surveying the field of instrumentation has been approached. The current allotment of funds was insufficient to carry such a program to completion; but it is believed that the results of the work already done confirm the fact that the approach is correct, and indicate the value of making a complete and detailed survey of the field.

An incidental value of such a study, but by no means an unimportant one, will be its value to the technical department of all companies, irrespective of the class or classes of papers manufactured, in providing complete and readily accessible information for use in product evaluation.

Classification and Enumeration of Paper Properties

Considerable thought has been given to the proper arrangement of the material developed and collected in the survey. A logical treatment appeared to be an arrangement under an outline, the main groupings of which would correspond with the paper property being measured.

All properties of paper can be arbitrarily grouped as structural, optical, surface, and physico-chemical; the last includes those properties which are more directly dependent on both the chemical and physical properties existing in the sheet. An attempt has been made to include all recognized properties of paper and to avoid confusion and duplication by eliminating analogous terms which exist for defining some of them. Those listed are definite and distinct, whether they are fundamental or arbitrary use-properties influenced by more than one fundamental property. In general, the methods of analysis which are used for the purpose of determining the raw material or the manufacturing methods used in producing the sheet have not been included. These have been considered outside the province of this study, which is primarily directed toward the evaluation of the result accomplished and not at the method used in accomplishing it.

A sheet of paper, considered as an aggregate of numerous small units of several materials, arranged in a wide variety of conditions and of patterns, possesses, as R. H. Doughty has pointed out, three groups of fundamental properties; dimensional, composition, and structural.

Dimensional properties (actual dimensions of the sheet) are simple and easily evaluated. The others are much more complicated. Properties of composition comprise, to give a partial list, fiber composition, filler content, sizing material content, coating, and dye content, each of which is in turn an aggregate of properties. For example, the individual units of materials have dimensional, composition, and structural properties, all of which are important in determining the properties of the finished sheet. To a lesser extent, the same is true of the other components of the sheet.

Structural properties include volumetric composition, i.e., relative solid, liquid and air volumes, unit particle (fiber and others) distribution and arrangement, and particle adhesion force.

All of these are fundamental properties. Undoubtedly, there are more; moreover, those given can be further subdivided. Nevertheless, it is easy to see that only those mentioned present a very complicated array; they comprise a formidable problem in evaluation. If it were possible to measure accurately all of these and all other such properties that exist, it would be possible to define exactly a sheet of paper. Such a definition would completely delineate the characteristics of any paper.

However, very little is known about the measurement of these properties; furthermore, the minuteness and complicity of the structural units with which it is necessary to deal makes almost hopeless the complete measurement of the truly fundamental properties. For example, both the dimension and shape of the particle of fiber in a refined stock must be determining factors in the sheet properties. Consider the accurate measurement of these! Or again, the dimension of the rosin size particles and the manner in which they are distributed on the fiber and through the sheet are undoubtedly determining factors. How may they be measured? Progress is being made in such measurements, but a great deal of fundamental work remains to be done before the characteristics of a sheet of paper can be completely expressed in terms of value for strictly fundamental properties. This is the situation when the sheet is considered as an aggregate structure.

From the viewpoint of quality grading or use requirement grading, there is no real necessity that properties be measured in terms of these fundamental basic values. Such measurements are more applicable to manufacturing specification.

When a sheet of paper is considered as an entity, as a single unit and not as an aggregate of smaller units, it possesses several properties which are distinct and definite, and which cannot be factored into component properties. These are the properties that are considered fundamental in this report. They are:

Thickness	Light transmission
Weight	Light absorption
Apparent density	Reflectance
Expansion and contraction	Elasticity
Surface contour	Stretch
Formation	Compressibility
Porosity	Hardness
Wetability	Stiffness
Dielectric strength	Bending strength
Thermal conductivity	Tensile strength
Electrical conductivity	Shearing strength

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There are several other evaluations commonly made on paper; evaluations which are normally considered as measuring specific properties, but which are actually affected by two or more fundamental properties, and which do not logically fall under the classification of fundamental properties. These factors are closely associated with the use requirements of the paper. The methods for their measurement have been in the main developed by simulating use conditions. The term "use properties", therefore, seems a satisfactory name for this group of measurements. It must, however, not be considered as including all properties that are direct measures of use requirements. Since many of the fundamental properties are a direct measurement of ability to meet use requirements, the grouping seems to remove from the fundamental properties those which are the result of a combination of fundamental properties. The failure to make this distinction has been the cause of much confusion in the application of testing instruments and the interpretation of testing results. The evaluations so classed are:

Bulking	Smoothness
Absorbency	Gloss
Degree of sizing	Fuzz
Resistance to penetrations by liquids	Transparency
	Opacity
Water vapor permeability	Curl
Resistance to wear	Bursting strength
Erasability	Folding strength
Rattle	Tearing strength
Abrasiveness	Creasing strength
Finish	Permanence

(NOTE: In considering the classifications of the above properties it must be recognized that in many instances there is no official definition and the connotation given depends upon the many uses that the term may have in the jargon of the trade. It is suggested, therefore, that careful consideration be given to the dissertation on property terms and the arbitrary definitions which it was necessary to evolve for this study before an attempt is made to criticize the above classifications.)

For definitions of these terms, *see* Instrumentation Studies, II.

Abstracts of Detailed Studies

In carrying out the program of the central grading committee, the Institute, after completing the outline of properties, proceeded to make complete intensive studies of some of those properties on which there was an urgent need for more complete and accurate information. Three of the detailed studies were made to meet immediate needs of the Central Grading Committee. The other detailed studies undertaken were on instruments that grading work had shown to be of importance.

Development and Adaptation of Instruments for the Evaluation of Smoothness, Gloss, and Formation

Soon after the inception of the Instrumentation Program, the Central Grading Committee was faced with the urgent need for suitable instruments for the evaluation of these three properties. Existing instruments being manufactured were found unsatisfactory. An experimental instrument developed in the reasearch laboratories of the Oxford Paper Company for the measurement of gloss and one developed in the research laboratory of the Kimberly-Clark Corporation for the measurement of formation were suggested, but these needed further development and study before being used for grading work. The problem of developing them to instruments suitable for commercial manufacture and the study of their application to the grading of various types of paper was brought to The Institute of Paper Chemistry with the request for its prompt completion.

For the measurement of smoothness no suggested commercial or experimental instrument showed sufficient promise to warrant its study at that time. Subsequently, at a meeting held to discuss this problem, it was decided that an instrument of the design prepared by M. N. Davis of the Kimberly-Clark Corporation merited investigation. The Central Grading Committee requested that the Institute build and study such an instrument.

These three problems, because of the necessity of their early completion, occupied the principal attention of the Institute during the early days of the program. The formation tester and the glossmeter developed were found suitable for the purpose and much superior to any instrument of prior existence. They have been formally adopted as grading instruments and are now commercially available. The experimental instrument built for the measurement of smoothness and the study made with it added much to the scientific understanding of this property, but it was found to be unsatisfactory for grading measurements.

The following reports on these studies are presented, in the papers which follow.

The Evaluation of Formation by the Thwing Formation Tester.

The design of the instrument is described and experimental data reported which show the reproducibility of readings both between different operators and between different instruments. Readings representative of several grades of paper are included. (Instrumentation Studies. III).

The Correlation of Thwing Formation Readings to Visual Formation Gradings by the Mead Standards

This report gives the results of comparative Thwing formation readings and visual gradings by four separate laboratories on fifty samples representing a wide range of formations. The reproducibility of visual gradings between different observers was shown to be relatively poor and the agreement between the Thwing results and the average of the visual results is much better than the agreement of individual visual gradings. (Instrumentation Studies. IV).

Report on Gloss.

The theoretical attributes of gloss are discussed in detail and the experimental determination of the most suitable value for the critical dimensions of the Oxford glossmeter (B. & L.) are described. (Instrumentation Studies. V).

The Modified Oxford Glarimeter.

This report discusses the results obtained with the modified design and the correlation to visual evaluation of gloss. (Instrumentation Studies. VI).

A Comparative Study of the Bausch & Lomb Glossmeter and the Ingersoll Glarimeter.

The purpose of this study was to consider the correlation between these two instruments. In previous reports it has been established that the B. & L. instrument correlates much more accurately with visual grading of gloss and it has been shown that the glarimeter does not give the correct relative grading to certain high gloss coated papers. In view of this, no more than a very general correlation can be expected. Many carefully taken readings of 72 coated papers covering a wide range of gloss on both instruments are presented graphically and show the correlation to be expected.

In considering the causes for the marked discrepancies encountered with the glarimeter, it was discovered that they are due to the variations in the refractive indices of the materials, most probably the coating pigments, in the papers. This cause is theoretically substantiated in the report. (Instrumentation Studies. VII).

Analysis of Smoothness.

This report discusses the theoretical concepts of smooth-

ness and the various popular concepts of this property, with special reference to printing papers. (Instrumentation Studies. VIII).

SMOOTHNESS TESTER.

Because of the importance of the property known as smoothness, it was felt worth while to review the methods that have been suggested for its measurement. This has been done in a report entitled "A Discussion of Methods for Measuring the Smoothness of Paper" (Instrumentation Studies. X). When considering these methods the possibility of evaluating smoothness by an instrument based on the measurement of the capacitance of paper was suggested by one of the Institute staff. Since equipment was available for this measurement, several papers were tested. The results, while they do not correlate with other methods of measuring smoothness, and while the correlation with the visual estimation of smoothness is only approximate, indicate that the instrument may be of considerable value for research purposes. The design of the instrument and typical measurements are given in the above-mentioned report.

Two instruments which are now in use for the measurement of smoothness, the Bekk and the Gurley, have been critically examined. Unfortunately the Williams tester, which is also in fairly wide use, was not available for inclusion in this study. The study of the two instruments was carried out in the manner outlined earlier in this report and a report "The Bekk and Gurley Smoothness Testers" has been written giving the results. This report shows the accuracy and reproducibility to be expected from these instruments and discusses certain precautions with regard to their use. It is shown that the results obtained with the two instruments do not correlate. It is further indicated that they do not measure the same properties of paper. (Instrumentation Studies. IX).

The usual conception of smoothness involves a complexity of properties which prevents any clear-cut fundamental evaluation. The measurement of this property presents an excellent example of the confusion that can arise when an instrument is used for the evaluation of a property that is not clearly defined, and when the fundamental properties being measured are not understood. Before the problem can be satisfactorily solved, several questions have to be answered. Is the visual appearance of smoothness, or smoothness as it affects printing, the property that is to be measured? Should smoothness be measured as it exists in the free sheet or as it exists in the sheet under pressure? Should the measurement be one of magnitude of surface irregularities, or of their frequency, or both? The problem needs much more work along these lines before suitable instruments can be suggested.

BIBLIOGRAPHY OF EFFECT OF HUMIDITY IN THE PHYSICAL TESTING OF PAPER

Most physical properties of paper are affected by atmospheric conditions; consequently, precise measurement of these properties demands accurate control of the atmospheric conditions under which the papers are tested. Because of its basic importance, the effect of atmospheric conditions on paper was made a specific part of the whole survey and was given early attention.

A bibligraphy covering 100 articles, with abstracts of the more important ones, has been prepared. The general effects of humidity are known, but the hysteresis in moisture content changes of paper as related to relative humidity changes has not received the attention that accurate evaluation of properties demands. Jarrell (*Paper Trade J.* 85, No. 3:47-51 (July 21, 1927)) reported results which show that moisture content of paper is considerably higher for a given relative humidity when the paper is brought to this humidity from a higher humidity than when brought from a lower humidity. (Instrumentation Studies. XI).

EFFECT OF RELATIVE HUMIDITY ON THE PHYSICAL PROPERTIES WITH RESPECT TO THE HYSTERESIS EFFECT IN CHANGES FROM ONE HUMIDITY TO ANOTHER.

Eighteen samples of paper representing a variety of grades were tested at each humidity for basis weight, bursting strength, tearing strength, tensile strength, stretch, expansion, and TAPPI size. All samples were seasoned at 30 per cent relative humidity before beginning the test. They were then seasoned at 40 per cent relative humidity and tested, then successively seasoned and tested at 50, 65, and 75 per cent relative humidity. They were then seasoned at 85 per cent relative humidity but not tested. Following this they were successively seasoned and tested at 75, 65, 50, and 40 per cent relative humidity.

All properties tested showed a marked hysteresis in values when the samples were carried through this succession of changes. The magnitude of the hysteresis varied considerably with the type of paper except in the case of basis weight (i.e., moisture content); here the effect was approximately the same for all papers. The report gives the results in detail and contains curves showing the effect for each type of paper and composite curves for each property. (Instrumentation Studies. XII).

MEASUREMENT OF COLOR.

The Institute through its grading contacts has noted the many color problems that exist, their occurrence in most divisions, and the lack of an entirely acceptable means of evaluating this property. The measurement of this color property has probably an even greater significance for manufacturing control than for grading. A General Electric color analyzer is available at the Institute and provides a good reference instrument for determining the accuracy of any color measuring instrument. It measures color accurately in fundamental values and is sensitive to small differences. It draws a reflectance curve for any sample over the entire visible wave-length band. This curve is reproductible to within ± 1 per cent reflectance. (A new model now being manufactured gives even better sensitivity and reproducibility). It is a delicate instrument and requires a trained and experienced operator. Its high cost has prevented its widespread use and, for general purposes, it seems probable that some low cost instrument which approximates the results of this instrument will be used eventually. There are many instruments available for the measurement of color. The only other recording color analyzer is the Razek-Mulder. As yet this instrument has not been available to the Institute and no critical study has been possible.

There are a large number of instruments of the tri-color filter type available, but none has met with general acceptance. Several of these have seemed worthy of rather thorough consideration in this study.

ADAPTABILITY OF THE G. E. REFLECTION METER AS A COLOR ANALYZER.

The original designers of the reflection meter had hoped that the instrument might be used for analysis of color as well as for the measurement of "brightness." Under the Codes, the reflection meter was developed to give high accuracy as a "brightness tester" for grading purposes and little publicity was given to the other features of the instrument. It was apparent, however, that it might be a very satisfactory means of measuring color if results comparable to those obtained with the usual "brightness filter" could be obtained with the color filters provided in

the instrument. The use of this instrument as a color analyzer has been fully investigated at the Institute and a comprehensive report prepared. (Instrumentation Studies. XIII).

The purpose of the investigation was to obtain reflectance readings which would be accurately comparable to the more fundamental spectro-photometric color measurements. The results of the Hardy color analyzer were used as spectro-photometric reference standards. To achieve this purpose, tabulated data and curves are presented which compare the results obtained by the reflectance meter with those of the Hardy color analyzer on a wide range of colors from white bonds to highly colored groundwood cover papers. The effects of all variables which influence accuracy, sensitivity, range, and reproducibility on the reflection meter over a period of time, and from instrument to instrument, are discussed. The important variables are: light intensity, magnitude and constance of filter transmissions, permanence of standards, focus of filament image, aging of lamps, voltage variation of lamp supply, and change of spectral sensitivity of photocells. In addition, the effects of the variables included in the theoretical comparison of the reflection meter results with those of the Hardy color analyzer are considered. These variables are: wave-length range passed by filter, solid angles of viewing and illuminating, angles of viewing and illuminating, the spectral distribution of the light sources, spectral transmissions of the filters, spectral sensitivities of photocells, and the effect of irradiation. The knowledge of these effects provides a basis for understanding the discrepancies which are likely to arise in comparing the results of the many color analyzers which are now on the market.

In order to obtain a consistent agreement between the reflection meter and the Hardy color analyzer, it was found necessary to add an auxiliary heat filter to the optical system of the former. Since this addition was the fundamental contribution of the study, a search for the reason for its addition was made. The reason necessitating the use of this auxiliary filter was found to be a near infrared fluorescence of many colored papers. This type of fluorescence is a physical phenomenon not generally recognized. The result of the study is that the reflection meter, with the addition of the auxiliary heat filter, may be used as a color analyzer which gives curves closely approximating results obtained on an ideally accurate spectrophotometer.

Investigation of Stiffness Testers.

It is theoretically shown that stiffness readings taken with the Gurley, Carter, and Smith-Taber instruments are directly proportional to the force in milligrams necessarily applied to the free end of the paper sample in order to produce a specified bending. The experimental conversion factor from one scale to the other, that was obtained from measurements of 32 different samples for both the machine and cross machine directions, verifies the theoretical argument.

The outside limit of reproducibility is 5 per cent for the Smith-Taber instrument and 3 per cent for the Gurley instrument. The data obtained with the Carter instrument show a reproducibility very near that of the Gurley. Precautions to be taken in order to hold results within these limits are discussed.

The range of the Gurley instrument is probably more flexible than that of the Smith-Taber instrument. The range of the Carter instrument is more limited than that of either, since the 90 degree bend breaks or permanently distorts many heavyweight papers and boards. It is more convenient than either of the other instruments for very lightweight papers.

The following facts with respect to the variables which permit the change of the sensitivity have been experimentally justified. First, stiffness readings are directly proportional to the width of the sample. Second, stiffness readings are inversely proportional to the square of the length of the sample only for samples longer than 2.5 inches. Third, more than five samples of low stiffness should not be simultaneously measured.

Experimental data for samples of very low stiffness show that the conversion factor for use with the ultra-sensitive attachment of the Smith-Taber instrument should be *12* rather than *10*. (Instrumentation Studies. XIV, XV).

Correlation Between Methods for Determining the Degree of Sizing.

Two instrumental methods and the TAPPI method have been used on a large number of samples in several grades. The results are plotted and discussed in a report bearing the above title. The correlation is only approximate and varies considerably from grade to grade. In this report the properties measured by the commonly used methods are discussed and certain conclusions as to what a size tester should measure are presented. (Instrumentation Studies. XVI).

Optical Measurements.

In a study of the properties of paper it is logical to expect that instruments for their measurement would be suggested. Since the equipment for setting up a wide variety of instruments for optical measurements is available at The Institute of Paper Chemistry, three of the proposed measurements have been investigated.

An Instrument for the Objective Measurement of the Diffuse Light Transmittance of Paper of Parallel Light.

D. B. Wicker, in a thesis presented for his degree at the Institute, discusses the fundamental properties of glassine and shows that the visual transparency of glassines and similar papers is directly related to the parallel light transmitted by the sheet. On the basis of his work, a photoelectric instrument for the measurement of this fundamental property was designed. The instrument was found to give a valid and accurate measure of transparency as visually observed. The instrument readily lends itself to routine control measurements and an experimental instrument has been supplied to one of the glassine manufacturers. They have used it constantly in controlling their operation during the past several months, and report that it gives results which accurately agree with visual estimation, and which are sensitive to smaller differences than can be observed visually. The instrument is fully described in a report bearing the above title. (Instrumentation Studies. XVII).

Rate of Oil Penetration Through Papers.

The subjective end-point of the usual oil absorption or oil penetration test prevents accurate measurements. It has been suggested that this end-point might be determined objectively by a modification of the photo-electric instrument previously mentioned. Such an instrument has been constructed. It measures the total diffuse light transmission of paper and provides for the convenient application of a thin oil film to the sample, and for the measurement of change in transmission as a function of time. With this instrument it is possible not only to accurately measure the time for total penetration but also to compute the rate of oil penetration at any time during the period of penetration. This measure-

ment should have a valuable use in the study of the behavior of paper to printing ink vehicles. The theory and design of the instrument, formulas for the calculation, and typical results are given in the report. (Instrumentation Studies. XVIII).

PHOTO ELECTRIC DEVICE FOR THE OBJECTIVE MEASUREMENT OF LIGHT SCATTERED BY SMALL PARTICLES AND SURFACE FUZZ OF PAPER.

This report describes the theory and design of the instrument and gives sample results of measurements of fuzz. Further work on the application of the instrument and the interpretation of the results remains to be done. (Instrumentation Studies. XIX).

Summary

This report discusses the line of thought followed in analyzing the subject of paper property evaluation and the relationship of instrumentation to paper grading. Seventeen such studies have already been completed and are briefly abstracted in this report. Three of the instruments discussed in these reports are of new design, the inception of which has been an outgrowth of this consideration of the fundamental properties of paper.

The results of this study, as in any scientific investigation, are cumulative in value. In the beginning it is necessary to explore the possibilities, determine the exact objectives, and establish the definitions which form the foundation on which the structure of the complete study may be built. The results become increasingly valuable as work proceeds and often the later investigations will give further understanding of the early problems. It is only by long and careful consideration and by evaluating each of the contributing factors in detail that full value can be realized.

Kalamazoo TAPPI Discusses Pulp

The Kalamazoo Valley Section of the Techncial Association of the Pulp and Paper Industry met at the Park-American Hotel, Kalamazoo, Mich. on Thursday evening, December 10, 1936. M. R. Wilkins of the Bryant Paper Company presided as chairman.

Newton L. Nourse of the Brown Company, Portland, Me., talked on "Pulp Characteristics and Beating." His talk presented the primary and secondary characteristics of pulp, the primary characteristics being hardness and softness, long and short fibers, and purity, and the secondary properties being color, bulk, opacity, and sheet forming ability. Eight types of pulps having one or more of the primary characteristics were shown. He said that in order to choose the proper pulp for paper it is necessary to decide whether the sheet is to be hard or soft and how much of hardness is to be due to size or chemicals; to decide whether long or short or combination of two fibers is desired; and if its use will demand a definite degree of purity as necessitated by exposure to heat, light and chemicals over a period of years. After furnish is decided upon it is necessary to consider proper method of beating, as inherent strength of pulp can only be brought out by proper beating.

Among those present were: A. L. Sherwood, D. H. Balliet, and J. A. Heenan, Sutherland Paper Company, Kalamazoo; S. H. Lindeen, J. L. Russell, Ray Olson, C. A. White, O. F. Fischer, M. R. Wilkins, Bryant Paper Company, Kalamazoo; R. Irwin, H. Eastman, P. Easton, H. R. Miller, R. J. Mashburg, H. O. Wave, F. Shankweiler and H. Heller, Hercules Powder Company; R. Atkins and A. Weinland, Lee Paper Company, Vicksburg, Mich.; F. L. Brown, A. E. Hays, R. L. Barton, W. Astle, G. C. Schmid, and P. de Guehery, Michigan Paper Company, Plainwell, Mich.; W. Hathaway, R. B. Stewart, F. D. Libby, W. J. White, Hugh Smith, R. Hurst, A. B. Perlick, Kalamazoo Vegetable Parchment Company, Kalamazoo; C. C. Schneider and H. E. Stafford, Hawthorne Paper Company, Kalamazoo; L. Zellers and M. F. Flotow, French Paper Company, Niles, Mich.; Karl Thorsen, H. J. Hotz and S. Henry, Central Paper Company, Muskegon, Mich.; J. A. Wise, Kalamazoo Paper Company, Kalamazoo; W. S. Taylor and V. Heinmuller, American Cyanamid and Chemical Corp., Kalamazoo; S. P. Robinson, Lincoln Paper Company, Elkhart, Ind.; W. A. Kirkpatrick and H. Annis, Allied Paper Mills, Kalamazoo; H. C. Bradford and A. Cole, Rex Paper Company, Kalamazoo; M. L. Gilman and N. L. Nourse, Brown Paper Company, Portland, Me.; G. E. Hoy and F. D. Elliott, Michigan Carton Co., Battle Creek, Mich.; D. W. McCready, University of Michigan, Ann Arbor, Mich.; Paul Boronow, Valley Iron Works, Appleton, Wis.; A. W. Macvie, Parsons & Whittemore Company, New York; G. A. Herman, Herman Manufacturing Company, Lancaster, Ohio; J. Scheuerman, Cameron Machine Company, Brooklyn, N. Y.; O. G. Squires, Shuler & Benninghofen, Hamilton, Ohio; C. B. Smith, Huron Milling Company, Harbor Beach, Mich.; A. E. Woollam, Kalamazoo, Michigan.

TAPPI Notes

All manuscripts of papers to be presented at the annual meeting of the Technical Association of the Pulp and Paper Industry must be in the Secretary's office, in triplicate by January 1 at the latest. They were due on December 15th. An unusually fine program is being arranged.

D. B. Kuhe, formerly manager of the Continental Paper and Bag Mills at Rumford, Me. is now manager of the Marinette, Wis. mill of the same company.

A. J. Luth, formerly chief chemist for the Nekoosa-Edwards Paper Company, Port Edwards, Wis. is now technical director of the Crossett Paper Mills, Crossett, Arkansas.

R. S. Yates of the John H. Heald Company, Lynchburg, Va., has been transferred to the Mead Corporation mill at Chillicothe, Ohio.

Karl E. Buff, formerly of the Alton Box Board and Paper Company is now with National Automotive Fibre Company, Detroit, Mich.

Fred Schorken formerly of St. Regis Paper Company, Norfolk, N. Y. is now with the Filer Fibre Company, Filer City, Mich.

John F. Ohlson who has been with the Oxford Miami Paper Company at West Carrollton, Ohio for the past several years has gone with the Continental Diamond Fibre Company, Bridgeport, Pa.

H. P. Cannon who has been with the Container Corporation of America at Manayunk, Pa. is now with the Upson Company, Lockport, N. Y. as assistant to the vice president.

Freeport Texas Changes Name

WILMINGTON, Del., December 15, 1936.—Stockholders of the Freeport Texas Company, one of the leading sulphur companies, at a special meeting here last week voted to change the name of the company to Freeport Sulphur Company, the name of its principal subsidiary. This subsidiary will shortly be liquidated and after January 1, 1937, the present parent company, operating under its new name, will be engaged directly in the business of producing and marketing sulphur.

Pulp and Paper Industry Literature Review

Abstracts of Articles and Patents Compiled by the Abstracts and Bibliography Committee of the Technical Association of the Pulp and Paper Industry, A. Papineau-Couture, John F. Ohlson, C. E. Peterson and Clarence J. West, Chairman

Copies of United States Patents can be obtained from the United States Patent Office, Washington, D. C., for 10 cents each. Send currency, not stamps.

Beating

Paper From Pulp Beaten in Jordans. N. O. Seilinger. Papier-Z97. 61, No. 43. 867-868 (May 27, 1936).—Experiments were made for testing the suitability of jordans for beating sulphite pulp for better printing and writing paper. As compared to hollanders, the energy consumption was found to be 41 per cent lower, the quality of the paper was equally good, and the mechanical properties, such as tearing length and double folds, were considerably higher.—C.J.W.

Influence of Pulp Consistency in Paper Making. Papier-Ztg. 61, No. 44: 882 (May 30, 1936).—A discussion of the importance of correct pulp consistency in beaters, beater chests and in the head box of the paper machine; in the last mentioned case the speed of travel of the wire and the width of the machine will be the decisive factors.—C.J.W.

Influence of Beating and Pressure Upon the Swelling Capacity of Paper in Sodium Hydroxide of Density 1.20. G. Annergren. Svensk Pappers-Tidn. 39, No. 9: 162-166 (May 15, 1936).—This is a study of the influence of beating and pressure upon the swelling capacity of three different sulphite pulps (strong, easy-bleaching and bleached) and a strong sulphate pulp. The sample sheets were prepared according to the directions of the Swedish Standardization Committee, beaten in a Lampen mill to different degrees and pressed at pressures of 1, 10 and 15 kg./sq. cm., after which procedure they were subjected to swelling experiments. The author expected a decreasing tendency of the swellability throughout the entire beating procedure; he found, however, that all pulps showed an increase until a certain maximum was reached, after which the values again decreased. The higher the pressure employed, the sooner this maximum occurred. He explains this phenomenon by the increase in the degree of hydration taking place through beating, which, however, does not signify a simultaneous increase in fibrillation. The increased pressure within the critical phase, i. e., until the maximum is reached, exerts the same influence as the mechanical beating procedure; hence, an increase in pressure results in increased swelling values. After the maximum is reached, a strong fibrillation takes place and the swelling capacity decreases again. The influence of pressure upon strength and other physical properties of paper is, therefore, the greatest within the critical beating phase, and not for the unbeaten condition, as previously assumed.—C.J.W.

Pulp Refiner. Frank Lord. U. S. pat. 2,044,480, (June 16, 1936).—In a refiner comprising grinding discs provided with knives on the lower side and propeller vanes on the upper side of the discs, the casing is formed with disc-like, preferably dish-shaped, walls.—A.P.-C.

Bandless Beater Roll and Jordan Plug. John D. Haskell, assignor to Dilts Machine Works, Inc. U. S. pat. 2,042,893 (June 2, 1936).—The cylinder or plug is provided with spaced milled slots of dovetail cross section, and in place of a number of individual keys or wedges there is used one long wedge-shaped spline which may be inserted either separately or with the fly bars or Jordan knives and driven endwise into the slots. This provides a bearing for the bar throughout its whole length, and it may be easily removed by driving the bar and spline endwise out of the drum or plug.—A.P.-C.

Reducing Machine. John T. Fowler, assignor to The Jeffrey Manufacturing Co. U. S. pat. 2,036,521 (April 7, 1936).—In a hammer mill type of machine, the usual screen bars are replaced by an imperforate wall composed, for example, of bars arranged in lateral contact to prevent the escape of material there between, the bars constituting a grid having sharp abutment edges to aid in the reduction of the material through the reduction zone. The only discharge is at the discharge end of the reducing zone and is under the complete control of the discharge mechanism, the speed of which can be regulated to hold the material within the path of the rotor for a sufficient time to insure effective reduction.—A.P.-C.

Reducing Machine. Walter J. Armstrong, assignor to The Jeffrey Manufacturing Co. U. S. pat. 2,036,522 (April 7, 1936).—In a hammer mill type of machine the feeding and discharging are synchronized so that the amount of material fed to the machine is equal to that discharged. The feeding and discharge means are preferably in the form of upper and lower runs of a single endless conveyor, synchronization being secured by proper relative adjustment of the feed and discharge openings.—A.P.-C.

Mixing Tank for Pulp Suspensions. J. C. F. C. Richter. U. S. pat. 2,047,595 (July 14, 1936).—A satisfactory mixing of pulp in a large mixing tank is obtained by the cooperation of a mechanical circulation device, such as one or more pumps, with one or more guiding surfaces or vanes arranged to form channels inside the tank leading to the pump intakes from different levels in the tank.—A.P.-C.

Beating Engine. Robert H. Henry, assignor to Simonds Worden White Co. U. S. pat. 2,044,847 (June 23, 1936).—In order to prevent air from being entrapped between the fly bars and to permit escape of any air that might be entrapped between them, each bar is built of a number of sections, slightly spaced apart from one another and each shaped like a broad V with the apex of the V at the front.—A.P.-C.

Grinding or Refining Machines for Paper Pulp. Frank Lord. Fr. pat. 795,035 (Sept. 10, 1935).—The pulp is ground by shearing between stationary blades and blades which are secured to the underside of rotating discs; a number of pairs are superposed. The general flow is upwards, but shearing takes place only while the pulp is flowing outwardly from the axis. Baffles are provided to ensure the return idle flow inwards without lodgment of pulp in undesirable places.—A.P.-C.

Production of Mechanically Defibered Pulp Masses. Arthur S. Cosler. Tech. Assoc. Paper 19:279-282 (June, 1936); Paper Trade J. 103, No. 2: 32-34 (July 9, 1936). —A description of the double-disc machine and discussion

of its performance on different types of pulp, illustrated with 8 microphotographs.—A.P.-C.

A Study of the Beater. Samuel Milne. World's Paper T8(45 R51. 105: 1115-118, 1156, 1158 (April 3, 1936); Pulp Paper Mag. Can. 37: 442-445 (July, 1936). —A description and discussion of the most recent improvements in the Milne beater and its performance.—A.P.-C.

Capacity and Efficiency of Beaters and Refiners. J. B. Gough. Pulp Paper Mag. Can. 37: 383-385 (June, 1936).—A mathematical discussion dealing with beaters, plug and shell type refiners and disc refiners.—A.P.-C.

Paper. Stephen B. Neiley, assignor to Dewey and Almy Chemical Co. of Canada, Ltd. Can. pat. 385,003 —May 19, 1936).—Rags are passed through a shoddy picker adjusted to decrease the fibre length sufficiently to prevent substantial tangling in the beater. The fibers are beaten and formed into a sheet.—A.P.-C.

Refining Engine. S. Milne. Brit. pat. 404,954. In a refining engine comprising a cylindrical or slightly conical rotor in a casing, bedplates slide to and from the rotor under hydraulic pressure, applied selectively or collectively.—A.P.-C.

Economical Beating of Stock in a Hollander Type Beater. Wochbl. Papierfabr. 67, No. 23; 429-30, (June 6, 1936).—A brief discussion of the factors involved in the beating of stock in a beater.—J.F.O.

Emulsions of Asphalt in the Paper Industry. Zellstoff U. Papier, 16, No. 5: 180-81 (May, 1936).—The author first gives a general discussion of emulsions, then briefly reviews the patents on bitumen and related substances from the earliest in 1889, and in conclusion the use of bitumen in beaters for the manufacture of paper. J.F.O.

Bleaching

Simplified Method for the Rapid Determination of the Available Chlorine Content of Pulp Bleaching Solutions. Donald T. Jackson and John L. Parsons. Paper Trade J. 103, No. 7: 77-78 (Aug. 13, 1936).—The method consists essentially in titrating *slowly* a hypochlorite solution with a standard solution of potassium iodide and sodium bicarbonate containing starch paste as inside indicator. It is based on the two following reactions: $3Ca(OCl)_2 + 6NaHCO_3 + KI = KIO_3 + 6NaCl + 3CaCO_3 + 3CO_2 + 3H_2O$, and $KIO_3 + 5KI + 6H_2CO_3 = 3I_2 + 6KHCO_3 + 3H_2O$.—A.P.-C.

Production of White Cellulose. Uddeholms Aktiebolag. Fr. pat. 795,708 (March 20, 1936).—Cellulose prepared by the processes of alkaline decomposition is submitted to a complementary decomposition using oxidizing and chlorinating agents, the oxidizing agent being used in amount up to 60 per cent of that necessary for complete decoloration and the chlorinating agent being used in proportion corresponding to the absorption power of the cellulose for chlorine. The reaction products are washed, treated with a bleaching agent having principally an oxidizing action, treated with an alkali up to mercerization point and then with acids. A very white cellulose is obtained particularly suitable for the preparation of derivatives.—A.P.-C.

New Developments in Bleaching Sulphite. T. A. Pascoe, R. P. Hella and J. W. Stevens. Paper Trade J. 103 No. 1: 110-113 (July 2, 1936).—A brief discussion of some of the more recent advances in bleaching practice and of the steps that the average established mill can take to bring its product into favorable comparison with that of the newer mills showing that, where multiple stage bleaching is contra-indicated for reasons of space, investment, etc., careful control by means of bleachability tests and the use of a two-stage chlorine-hypochlorite system of bleaching will yield an acceptable bleached sulphite from spruce.—A.P.-C.

A Contribution to the Mechanism of Bleaching. Friedrich Emil Brauns. Paper Trade J. 103, No. 5: 36-38 (July 30, 1936); Tech. Assoc. Papers 19: 302-305 (June 1936).—An investigation into the function of the hydroxl group (either enolic or phenolic) of lignin that is methylatable with diazomethane indicated that it has some relation to the ordinary color and staining reactions of lignin and lignified pulps.—A.P.-C.

The Effect of pH on the Rate of Chlorine Consumption in Bleaching. W. O. Hisey and C. M. Koon. Tech. Assoc. Papers 19: 293-300 (June, 1936); Paper Trade J. 103, No. 6: 36-43 (Aug. 6, 1936).—A study of the bleaching of sulphite pulp in buffered solutions of fixed pH. The lower the pH the more active the solution, as measured by the oxidation potential. For equivalent concentrations as available chlorine, the composition of the liquor depends on the pH. In buffered bleach liquor maintained at constant pH, the rate of chlorine consumption is roughly dependent on the oxidation potential, a more rapid reaction being obtained under acid conditions. The best color, for consumption of a constant amount of chlorine, is obtained under conditions of moderate alkalinity (pH 10.8).—A.P.-C.

Developments in the Bleaching of Pulp. Francis J. Cirves. Paper Industry 18: 285-289 (July, 1936).—A discussion of the performance and merits of the alkali-liquid chlorine bleach process (U. S. pat. pending).—A.P.-C.

What Do We Know About Bleaching? John D. Rue. Paper Trade J. 102, No. 23: 33-36 (June 4, 1936).—A review and discussion of the present state of our knowledge of paper pulp bleaching.—A.P.-C.

Modern Electrolysis of Alkali Chlorides and Its Importance in the Manufacture of Paper. Alfred Karsten. Papeteria 58: 338-345 (April 25, 1936); Mon. Papeterie Belce 16: 321, 323 (May, 1936).—A brief description of the Siemens-Pestalozza cell and of its advantages for small and medium sized plants.—A.P.-C.

Process of Treating Bleached Pulp. George H. Tomlinson. U. S. pat. 2,049,676 (Aug. 4, 1936).—Pulp which has been bleached to the point of substantially complete removal of lignin is acidulated (e.g., with very dilute sulphuric acid) in presence of an antichlor such as sodium sulphite or sulphur dioxide; washed, and treated with a neutral solution containing free hypochlorous acid having no acidity greater than that of hypochlorous acid and in amount sufficient to remove the residual color solubilized by the acid.—A.P.-C.

Process of Bleaching Chemical Wood Pulp. David B. Davies. U. S. pat. 2,046,551 (July 7, 1936).—Liquid chlorine, in amounts varying from 30 per cent to 50 per cent of that required for complete bleaching is introduced into the pulp at low consistency, the heat absorbed by the chlorine on expanding and vaporizing being used to cool the pulp. The latter is washed and subjected to single-stage or two-stage hypochlorite bleaching.—A.P.-C.

Bleaching of Wood Pulp. A. Danninger. Brit. pat. 442,336 (April 18, 1935).—Groundwood is treated with materials capable of forming hydrosulphite *in situ, e.g.,* zinc dust and sulphur dioide.—A.P.-C.

Recent Advances in Bleaching. H. Rauchberg. Papier-Fabr. 34, No. 14: 109-111; No. 15: 117-119 No. 16: 121-127 (April 6-19, 1936).—A review of advances in bleaching of pulp during the last five years. 120 footnotes.—C.J.W.

Purification of Sulphite Pulp. S. A. Fotiev. Buma-

zhnaya Prom. 15, No. 2: 21-26 (1936); C. A. 30: 5033. —In the purification of pine and spruce sulphite pulp, the best results are obtained by a two-stage bleaching of the pulp with intermediate treatment with 0.5-1 per cent sodium hydroide at 120-130° for 1-2 hours. The resulting pulp contains 95-96 per cent alphacellulose.—C.J.W.

Water in the Bleaching of Pulp. Zellstoff U. Papier 16, No. 7: 276-78 (July, 1936).—From 28 to 34 per cent of the total chlorine consumption during bleaching is contained in the dissolved incrustants in the waste water. The quality of the water used in bleaching must be watched closely to effect the most economical bleaching. A pH of 7.0 or slightly alkaline is the best for wash water. Dissolved iron salts are very detrimental to bleaching. The amount of water necessary per ton of pulp is from 200 to 300 cubic meters.—J.F.O.

De-inking

De-Inking Printed Paper. P. R. Hines. Brit. pat. 441,-331 (June 8, 1934).—Waste printed paper is shredded and boiled with a mixture of caustic soda, lime, and sodium silicate. It is then deckered, and the liberated ink particles are flocculated under either acid (with alum) or alkaline (with lime) conditions; the pulp is conditioned by agitation with *e.g.*, a high-boiling synthetic alcohol and soluble starch, and the ink particles are separated by flotation under conditions of controlled frothing.—A.P.-C.

Reclaiming Fiber From Waste Paper. Snyder MacSaren Process Inc. Brit. pat. 441,363 (May 3, 1935).—The de-inking agent *(e.g.,* sodium silicate, fatty alcohol above C_8, etc.) is continuously fed, together with water at 38° to 65°C., into a pulper *(e.g.,* a rod or hammer mill) which is at the same time supplied with waste printed paper sufficient to give a high consistency. The stock may then be diluted, riffled, deckered, jordaned, and finally washed.—A.P.-C.

Coating

Paper Finishes—Cellulose, Synthetic and Gum. Arthur Jones. Paint Manuf. 6: 143-144 (1936); C. A. 30 4666.—A few formulas are given for wallpaper and label lacquers, poster lacquers and transparent paper lacquers. —C.J.W.

Dispersion of a Coating Mix. George A. Oechsle. Tech. Assoc. Papers 19: 300-301 (June, 1936); Paper Trade J. 103, No. 6: 43-44 (Aug. 6, 1936).—Data are presented on the performance of the Lancaster disperser, the Eppenbach colloid mill, and the Crane color jordan. —A.P.-C.

Developments in the Preparation of Coating Color Mixtures. E. G. Milham. Paper Trade J. 103, No. 1: 115-116 (July 2, 1936).—A general description and discussion of the preparation of coating color.—A.P.-C.

Adhesive Polymerized Vinyl-Ester-Resin Coatings. Ernest L. Kallander and Gardner R. Alden, assignors to Dennison Manufacturing Co. U. S. pats. 2,027,435 and 2,027,436 (Jan. 14, 1936)—*No. 2,027,435*—For giving a vinyl-ester-resin coating on material such as adhesive tape a desired degree of tackiness, it is treated with a volatile moistening liquid containing a true solvent for the resin, such as alcohol, and an alphatic hydrocarbon such as naphtha serving to restrain the solvent action. *No. 2,-027,436*—This patent relates to adhesive tape coated on one face with a vinyl-ester-resin and on the other face with another material such as cellulose acetate capable of adhesive activation by an organic liquid, both coatings being capable of adhering firmly to each other when so activated but without tackiness prior to such activation. —A.P.-C.

Coated Paper. Titan Co., Inc., Fr. pat. 796,128, (March 30, 1936).—A white opaque pigment having a refractive index of at least 1.7 with respect to air is dispersed in a sizing composition such as a suspension of glue, and the dispersion is applied to the surface of paper. Titanium dioxide may be used as pigment, alone or with a filler or a titanate or a colored titanium pigment. The weight of pigment is preferably not more than 15 per cent of the weight of the paper.—A.P.-C.

Developments in the Manufacture of Coated Paper. O. W. Callighan. Paper Trade J. 103, No. 7: 117 (Aug. 13, 1936); Pulp Paper Mag. Can. 37: (Aug., 1936).—A —A brief outline of some outstanding developments in the field of coated paper that have come to the attention of the members of the Coating Committee of TAPPI.—A.P.-C.

Dyeing

Testing the Lighting Fastness of Aniline Dyes. Papeterie 58: 345 (April 25, 1936).—Completely dissolve 0.25 g. of the dye to be tested in l. of water, immerse in the solution a strip of white blotting paper of definite and constant dimensions, let drain, air dry away from light as far as possible, cut the strip in two, expose one piece to light for a definite period of time, and note the degradation of color by comparison with the other piece from the same original strip.—A.P.-C.

Congo Red As a Paper Dye. Maurice Déribéré. Papier 39: 423-424 (May, 1936).—A brief outline of the properties of Congo red and of its suitability for coloring paper.—A.P.-C.

My Experiences in the Dyeing of Paper. A. H. Rutt. World's Paper Trade Aev. 105: 1276, 1278, 1316, 1318, 1356-1362 (April 17, 24, 1936).—An account of personal experience in overcoming dyeing difficulties.—A.P.-C.

Sizing

Paper Sizing. Theory and Practice of Paper Sizing. Ya. G. Khinchin. Leningrad Ablastnoi Sovet Nauch. Inzhenerno-Tekh. Odshchestva Tzellyulozno—Bumazhnoi Bumazhnoi Prom. 1935, No. 5: 5-31; C. A. 30: 5035.—Paper sizing with resinates. I. G. Kulev. *Ibid.* 32-111. A comprehensive critical review of literature, with 90 references, on the methods of preparation and uses of resinate size in paper making. **Theory and practice of cold method of paper sizing.** I. L. Kogan. *Ibid.* 112-121. **Sizing of writing and tablet papers.** S. S. Kuvshinov. *Ibid.* 122-124.—From the tabular presentation of the degree of sizing of various grades of paper obtained at different mills, it is concluded that white size gives better results than cold size in sizing of paper composed of 100 per cent bleached chemical pulp or containing in its composition mechanical pulp. **The effect of sizing from the theoretical viewpoint of capillarity and methods of determining degree of sizing.** I. I. Kovalevskii. *Ibid.* 125-141. **Use of starch gelatinized with an alkali in sizing of paper.** N. M. Barton. *Ibid.* 142-149.—The comparative effectiveness of potato starch sizes in sizing mechanical drawing paper (60 per cent bleached wood, 25 per cent flax and 15 per cent cotton pulp) was studied by using 5 per cent of soluble starch, crude starch gelatinized with water at 65° and 95°, with and without a subsequent addition of an equal part of crude starch, and starch gelatinized in 10 parts of water with 12.5 per cent sodium hydroxide (on the weight of starch) in the cold or with 6 per cent sodium hydroxide at 50 per cent. The last two sizes gave the best results, requiring no addition of rosin size. The resulting drawing paper possesses the required density and mechanical properties, leaving, after erasures of old markings, a smooth surface suitable for redrawing. **Use of paraffin**

in sizing of print paper. S. A. Zaitzev. *Ibid.* 150-151.—In the preparation of aqueous emulsion of paraffin with the aid of lard, and stearic, palmitic, ricinoleic and cerotic aids, the latter two gave the best emulsifying results. A stable emulsion of paraffin was obtained by heating a mixture of paraffin with 1-2 per cent cerotic acid to a marked clarification and stirring it energetically with dilute sodium hydroxide at 100°. In sizing of paper with this emulsion, the paraffin is uniformly deposited throughout the fiber without the aid of any precipitating agent. The paper sized with this emulsion when dried at about (not above) the melting point of paraffin retains it without any separation from the fiber. **Latest investigations in the field of collodial and physical chemistry and their application to the problems of paper making.** V. Ya. Kurbatov. *Ibid.* 152-175.—The theory and practice of paper sizing and sizes are discussed in the light of the modern conceptions of the structure and interaction of solvents and fibers. **Resolutions of the first All-Union scientific-industrial conference on the theory and practice of paper sizing.** *Ibid.* 176-178.—Plans for the investigation of the theory and improved methods of preparation of sizes and sizing adopted at the conference are discussed. **Bibliographical index of the literature on sizing.** B. A. Gerner. *Ibid.* 179-212.—C.J.W.

Problems of Improved Sizing of Paper. I. V. Molodov. Bumazhnaya Prom. 15, No. 2: 26-29 (1936); C. A. 30:5036.—A critical discussion of the performance of Soviet mills in the production of sizes by the hot and cold methods and application of the sizes in papermaking. —C. J. W.

Sizing Studies on Handmade Sheets. B. von Possanner. Papier-Fabr. 33, No. 31:257-260 (Aug. 4, 1935).—The author describes sizing studies on handmade sheets with rosin size, Montan wax, and mixtures of the two. The drying temperature and the pH of the fibrous suspension at the time of adding the size exert a decisive influence upon the size resistance of the resulting sheets. In the case of rosin size, the sizing resistance increases with increasing drying temperature to an optimum value and then decreases again, this optimum varying according to the composition of the size. In the case of Montan wax, however, an increase in the drying temperature is followed by a decrease in size resistance. The optimum pH for rosin size lies between 4.5 and 5, for Montan wax between 7.5 and 7.7. Since rosin size is far less sensitive to pH fluctuations than the wax, a slightly basic reaction of the water will yield the best results in the case of rosin-wax mixtures.—C. J. W.

The System of Rosin Size, Alum and Fiber as Related to Problems in Paper Sizing. Samuel J. Robinson. Paper Trade J. 103, No. 7: 104-112 (Aug. 13, 1936; Paper Mill 59, No. 34: 11, 13-14, 16-21 (Aug. 22, 1936).—An investigation into the properties of the precipitate obtained on the addition of an excess of aluminum sulphate to a dilute sodium abietate solution in presence and in absence of fibers in order to develop an analytical method for studying the mechanism of sizing.—A.P.-C.

Suitability of Sweet-Potato Starch for Beater Sizing of Paper. C. G. Weber, M. B. Shaw and M. J. O'Leary. Bur. Standards Miscellaneous Pub. M150, (1935) 7 pp.—The relative effects of maize, cassava and sweet-potato starches on both the retention of starch and clay and the properties of sulphite-soda, rag sulphite, and all-rag book papers were investigated. In all papers the presence of starch improved the bursting strength and in the first two kinds it improved the clay retention. In sulphite-soda it materially increased, but in rag-sulphite slightly decreased, the resistance to air permeability. In all cases starch reduced the tear and opacity. Papers containing sweet-potato starch were as strong as the best papers containing the other starches, but generally showed superior starch and clay retention and in some cases superior resistance to air permeability, which was assumed to be a measure of the extent to which the paper was "closed up."—A. P.-C.

Sizing Paper. The Glidden Co. Fr. pat. 798,401. Paper is sized with a sodium resinate mixed with preferably 10 to 50 per cent, and not more than 100 per cent, of its weight of a protein (preferably soybean protein). The size is added to the beater at or near the end of the beating operation, and an acid-reacting materiail, preferably aluminum sulphate, is added to a pH of 6 to 6.8.—A. P.-C.

Sizing of Fibrous Material. A. J. A. Asplund, assignor to Aktiebolaget Defibrator. U. S. pat. 2,047,170 (July 14, 1936)—Sizing agents are added to materials such as wood chips, straw, bamboo, etc., which are subjected to mechanical defibering at high temperature in presence of a limited quantity of moisture, preferably between 1 to 3 parts of water per part of fibrous material.—A. P.-C.

Paper Manufacture. Harold R. Rafton, assignor to Raffold Process Corp. U. S. pat. 2,049,864 (Aug. 4, 1936). —This is a modification of the processes of Rafton's U. S. pats. 1,803,643 and 1,803,647 of May 5, 1931, which provides for the use of substantiailly unsaponified saponifiable materials (preferably rosin) for sizing paper filled with an alkaline filler.—A. P.-C.

Drying

Theory of the Process of Drying of paper on Rolls. I. L. Lyuboshitz. Tzentral. Nauch.-Issledovatel. Inst. Bumazhnoi Prom. Materialui 1935, No. 2:186-211; C. A. 30:5035.—A discussion with mathematical treatment.—C. J. W.

Wax and Water Emulsions in the Manufacture of Paper. Fritz Ohl. Wochbl, Papierfabr, 67, No. 24: 449-450 (June 13, 1936).—After briefly mentioning the various waxes used in the paper industry, the author describes the dispersion means most suitable for each. Monoethanolamine will convert waxes with a relatively high acid content into a completely neutral substance.—J. F. O.

German Rosin. H. J. Loyeke. Papier-Fabr. 33, No. 41:337-340; No. 42:345-457; No. 43: 353-356 (Oct. 13-27, 1935).—The world's source of rosin is from the trees of the genus, pinus; in Germany, it is only pinus silvestris. In 1930, the world's production of raw rosin amounted to roughly 800,000 tons, of which the U. S. A. produced 70 per cent and France 16 per cent. The author discusses, the various industrial uses of rosin and its related products, possibility for Germany to produce its own requirement of rosin, different methods of obtaining rosin from dead wood and from the living trunk, distillation procedure, and the economics of producing rosin in Germany.—J. F. O.

Contribution to the Paper Drying Problem on the Paper Machine. A. Danninger. Papier-Fabr. 33, No. 40: 329-332 (Oct. 6, 1935).—The article describes an installation for increasing the efficiency of the wet presses which is covered by U. S. patent 1,802,407 (April 28, 1931). It consists of an electric radiation heater installed before the last wet press and does not come into direct contact with the soft and plastic cellulose sheet. The latter is uniformly heated, the viscosity of the water in the web is reduced, and the wet press thus becomes capable of squeezing out a much larger quantity of water than under ordinary non-heated conditions.—C. J. W.

Developments in Paper Drying. F. L. Shonkwiller. Pulp Paper Mag. Can. 37: 519-521 (Aug., 1936).—A

discussion of the importance of control of drier temperature and proper heat transfer through the drier shell, and more particularly of condensate and air removal. A positive method of removing condensate and air consists in passing the steam unrestrictedly through the dry end driers by means of a differential pressure maintained constantly between the steam supply and condensate headers and placing individual condensate and air separators on each drier at the wet end section. A special siphon scoop is used for removing condensate on high speed machines. The merits of the system are discussed.—A.P.-C.

The Minton Vacuum Drier in the News Print Industry. I. Description and Operating Characteristics. J. B. Gough. Paper Trade J. 103, No. 7: 98-102, (Aug. 13, 1936); Pulp Paper Mag. 37: 515-519 (Aug, 1936).—A A description of the Minton drier, relating more particularly to the in-going and out-going seals, with a discussion of the thermal efficiency and some of the more important operating features.—A. P.-C.

The Minton Vacuum Drier in the News Print Industry. II. The Quality of Vacuum Dried Paper. H. S. Hill. Paper Trade J. 103, No. 7: 102-104 (Aug. 13, 1936); Pulp Paper Mag. Can. 37: 519-521 (Aug., 1936).—As compared with news print made on regular type driers and under otherwise similar operating conditions, vacuum dried news print from a given stock is brighter, more opaque, softer, more porous, more absorbent to both oil and water, smoother as tested by the Bekk or similar type instrument, and shows a somewhat lower Mullen and tensile strength test, a slightly higher tear test, about equal stretch at the breaking load, and a slightly higher stretch at lower loads.—A. P.-C.

Drier Felt Seam. T. Hindle and S. Lord. Brit. pat. 440,675.—The seam of a drier felt is formed by folding each end back and securing by lines of stitches, slotting the loops thus formed to accommodate links which couple rods inserted in the loops of the felt. The links, which should not be as thick as the felt, may be cut from a tube or case or machined from a bar, or may have an eye at one end and a hook at the other, or a hook at each end.—A. P.-C.

Paper Drier. E. Schmidt. Brit. pat. 440,619—The use of felts is dispensed with and each drier cylinder is surrounded closely by a perforated jacket. At the position of entry and discharge of the paper spring-urged guide rolls are used, and between them are arranged adjustable air nozzles for blowing dry hot air into the annular space.—A. P.-C.

Evaluation of Drier Performance. F. W. Adams and A. E. Montgomery. Tech. Assoc. Papers 19: 323-325 (June, 1936); Paper Trade J. 103, No. 3: 26-28 (July 16, 1936).—A discussion and comparison of previous reports on various grades of paper, indicating how the date obtained may be applied to improving rate of production without loss of quality.—A. P.-C.

Controlled Leak for Paper Making Machines. Gerould T. Lane and Wendell Butterfield, assignors to Eastman Kodak Co. U. S. pat. 2,046,271 (June 30, 1936).—In a cylinder machine a heavy, hollow dam member is provided in the vat at the point at which the endless wire, enters into the stock. The lower end of the dam is close to but out of contact with the surface of the wire, and is provided with a suction extending the full width of the machine. The dam is connected to a suction pump, so that the stock leaking between the dam and the wire is drawn into the dam; some of the white wire from inside the cylinder mold is also drawn into the dam, thus serving to wash the wire just as it reaches the stock.—A.P.-C.

Evacuation of Condensate From Paper Machine Driers. Hervey G. Cram. U. S. pat. 2,049,050, (July 29, 1936)—Each condensate evacuating pipe has at its lower end a port of such capacity that it can pass at a uniform rate under a head slightly greater than the lift of the pipe a volume of liquid equal to the normal condensation in the cylinder in which it is located, the ports being thus graduated throughout the battery of driers.—A. P.-C.

Festoon Drier. Charles A. Drickhaut and Charles C. Willis, assignors to John Waldron Corp. U. S. pat. 2,043,795 (June 9, 1936).—The invention provides for an auxiliary stick carrier that co-acts with the main carrier to facilitate the initial formation of the loops. The main conveyor is divided into a number of separate sections operating at different speeds, and the stick-control mechanism comprises a releasing pawl the operation of which is controlled by a photo-electric cell. The mechanism is claimed to eliminate troubles encountered on ordinary festoon driers when operating at high speeds (e.g., above 250 ft. per min.)—A.P.-C.

Paper Machine Drier Felt. William A. Barrell, U. S. pat. 2,047,610 (July 14, 1936).—A drier felt comprises two plies, with binder strands interwoven with body strands of both plies and supplementary warp strands equal in number to all the filling strands of the face ply and having loops passing between all the body warp strands of both plies and being interlocked with filling strands of the back ply as originally woven. The parts of the supplementary warp strands which lie in the paper-contacting surface of the felt are supported by the contiguous body warp strands so that they protrude beyond the body strands in the paper contacting face.—A.P.-C.

Paper Machine Drier Felt. William A. Barrell. U. S. pat. 2,047,542 (July 14, 1936).—A porous drier felt comprises two complete plies constructed each of interwoven warp and filling strands in a single plane weave, and binder strands supported externally on the exposed parts of the warp strands of the outer face of one ply so that they overlie and protect the warp strands of that ply, and having loops at intervals extending through the felt and interlocked with strands of the other ply to exposed points on the outer face of the second ply.—A. P.-C.

Electrical Drives for the Drying Cylinders of a Paper Machine. F. Schiller, Zellstoff U. Papier, 16, No. 7: 283-88 (July, 1936).—By means of numerous illustrations, the author describes the latest arrangements for driving drying cylinders.—J.F.O.

Pulps Properties

Influence of the Degradation of the Cellulose in Wood Pulp on the Manufacture of Viscose Rayon. H. Soyer. Rusta 11: 29 (Jan. 1936); Papier 39: 439-440 (May, 1936).—The chief effect of the degradation of cellulose in wood pulp is to increase the primary swelling of the yarn (resulting in defective reeling); it also reduces decidedly the serimetric constants. Both these defects can be avoided by correcting the viscosity by aging the alkalicellulose at lower temperature.—A.P.-C.

A Study of the Effect of Hemicelluloses on the Beating and Strength of Pulps. Henry E. Obermanns. Paper Trade J. 103, No. 7: 83-91 (Aug. 13, 1936). The influence of hemicelluloses was studied by adding various proportions of hemicelluloses (xylan, beta-cellulose fraction obtained from bleached sulphite) to sulphite and alpha pulps or by overbleaching rag stock at high temperature, and testing the resultant stock both physically and chemically.—A.P.-C.

Surface Area of Wood Pulp—O. Maass. Quart. Rev. Forest Products Lab. Can. 20: 8-10 (1934).—A null method of measurement is described which rapidly gives accurate results.—A.P.-C.

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RAGS, BAGGINGS, ETC.

E. J. Keller Co. Inc., *Veendam,* ———, 84 bls. bagging; R. & V. Miller, Inc., *Veendam,* Rotterdam, 9 bls. rags; Manufacturers Trust Co., *Gerolstein,* Antwerp, 48 bls. rags; ———, *Gerolstein,* Antwerp, 107 bls. rags; ———, *Kwanto Maru,* Osaka, 400 bls. cotton waste; Chase National Bank, *Cameronia,* Glasgow, 11 bls. new cuttings; Manufacturers Trust Co., *Seatrain Havana,* Havana, 1,296 bls. rags; National City Bank, *H. Jaspar,* Antwerp, 68 bls. rags; Irving Trust Co., *H. Jaspar,* Antwerp, 62 bls. bagging; Chase National Bank, *Pennland,* Antwerp, 192 bls. jute card waste; ———, *Pennland,* Antwerp, 325 bls. rags, 165 bls. flax waste; E. J. Keller Co. Inc., *Pennland,* ———, 175 bls. paper stock, 108 bls. bagging; Manufacturers Trust Co., *Pennland,* Antwerp, 74 bls. flax waste, 37 bls. rags; Ancram Paper Mills, *Pennland,* Antwerp, 46 bls. rags; ———, *Excambion,* Alexandria, 82 bls. bagging; W. Steck & Co., *Excambion,* Alexandria, 96 bls. bagging, 31 bls. rags; Castle & Overton, Inc., *Excambion,* Alexandria, 111 bls. rags, 132 bls. bagging; Banco Coml. Italiane Trust Co., *Excambion,* Alexandria, 40 bls. rags; E. J. Keller Co. Inc., *Excambion,* ———, 362 bls. paper stock; ———, *Lucia C.,* Trieste; 164 bls. rags; Bank of N. Y. Trust Co., *Lucia C.,* Trieste, 530 bls. rags; Manufacturers Trust Co,. *Lucia C.,* Naples, 232 bls. rags; Royal Manufacturing Co., *Silverash,* Bombay, 150 bls. cotton waste; S. Shapiro & Sons, *Silverash,* Bombay, 31 bls. cotton waste; Castle & Overton, Inc., *Silverash,* Bombay, 140 bls. jute rags; ———, *Silverash,* Bombay, 525 bls. rags; E. J. Keller Co. Inc., *Silverash,* ———, 42 bls. rags; Manufacturers Trust Co., *Weser,* Hamburg, 52 bls. rags; E. J. Keller Co. Inc., *Livenza,* ———, 51 bls. paper stock; Chase National Bank, *Livenza,* Genoa, 192 bls. rags, 87 bls. threads; Castle & Overton, Inc., *Paraguayo,* Buenos Ayres, 254 bls. dark cottons, 246 bls. bagging; Castle & Overton, Inc., *Paraguayo,* Buenos Ayres, 52 bls. canvas cuttings, 11 bls. paper stock, 21 bls. linens; ———, *Scythia,* Liverpool, 103 bls. rags, 41 bls. picker waste; P. J. Schweitzer, Inc., *Washing-*

ton, Hamburg, 51 bls. rags; National City Bank, *Hamburg,* Hamburg, 9 bls. rags; Banco Coml. Italiane Trust Co., *Hamburg,* Hamburg, 42 bls. rags; Bank of N. Y. Trust Co., *Hamburg,* Hamburg, 102 bls. rags; Bank of N. Y. Trust Co., *Batory,* Gdynia, 130 bls. rags; D. Benedetto, Inc., *Batory,* Gdynia, 272 bls. rags; ———, *Bristol City,* Bristol, 64 bls. rags; National City Bank, *Black Hawk,* Antwerp, 249 bls. rags; R. Blank, *Black Hawk,* Antwerp, 74 bls. rags; R. & V. Miller, Inc., *Black Hawk,* Antwerp, 7 bls. rags; Loumar Textile By Products Co., *Black Hawk,* Antwerp, 85 bls. bagging; E. Butterworth & Co. Inc., *Black Hawk,* Antwerp, 78 bls. bagging; D. Benedetto, Inc., *Black Hawk,* Antwerp, 81 bls. rags; Royal Manufacturing Co., *Black Hawk,* Antwerp, 46 bls. cotton waste; ———, *Black Hawk,* Antwerp, 44 bls. rags; E. J. Keller Co. Inc., *Black Hawk,* ———, 156 bls. flax waste, 183 bls. rags; ———, *Venice Maru,* Kobe, 750 bls. cotton waste; Royal Manufacturing Co., *Venice Maru,* Kobe, 20 bls. rags, 100 bls. cotton waste; New England Waste Co., *Venice Maru,* Kobe, 300 bls. cotton waste; E. J. Keller Co. Inc., *Venice Maru,* ———, 400 bls. rags, 300 bls. cotton waste; J. J. Ryan & Sons, Inc., *Venice Maru,* Shangai, 250 bls. cotton waste; Royal Manufacturing Co., *Venice Maru,* Shanghai, 400 bls. cotton waste; E. P. Gus, *Venice Maru,* Shanghai, 100 bls. cotton waste; O. Smith & Sons Co., *Venice Maru,* Shanghai, 100 bls. cotton waste; E. J. Keller Co. Inc., *Burgerdyk,* ———, 125 bls. rags; Great Eastern Packing & Paperstock Corp., *Burgerdyk,* Rotterdam, 73 bls. bagging; E. J. Keller Co. Inc., *Anna Maersk,* ———, 100 bls. paper stock; E. J. Keller Co. Inc., *Haukefjell,* ———, 271 bls. paper stock; E. J. Keller Co. Inc., *Black Eagle,* ———, 61 bls. paper stock.

OLD ROPE

E. J. Keller Co. Inc., *Livenza,* ———, 96 coils; Chase National Bank, *Bristol City,* Bristol, 88 coils.

CHINA CLAY

———, *Bristol City,* Bristol, 50 casks.

CASEIN

———, *Weser,* Hamburg, 134 bags; Balfour Guthrie & Co., *Eastern Prince,* Buenos Ayres, 834 bags; American British Chemical Supplies, *Eastern Prince,* Buenos Ayres, 417 bags; ———, *Hamburg,* Hamburg, 134 bags.

WOOD PULP

Bulkley Dunton & Co., *Hammaren,* ———, 2,700 bls. wood pulp, 557 tons; Bulkley Dunton & Co., *Erland,* ———, 4,375 bls. wood pulp, 875 tons; Johaneson Wales & Sparre, Inc., *Erland,* Soderhamn, 500 bls. sulphate, 100 tons; ———, *Erland,* Hernosand, 3,323 bls. sulphate, 553 tons; ———, *Erland,* Hernosand, 3,300 bls. sulphite, 550 tons; Johaneson Wales & Sparre, Inc., *Erland,* Sundsvall, 1,400 bls. sulphite, 275 tons; Mead Sales Co. Inc., *Erland,* Sundsvall, 210 bls. sulphite, 42 tons; Mead Sales Co. Inc., *Erland,* Sundsvall, 210 bls. chemical pulp, 42 tons; Price & Pierce, Ltd., *Georgia,* Wallvik, 600 bls. unbleached sulphite; Perkins Goodwin & Co., *Georgia,* Sundsvall, 600 bls. sulphite, 100 tons; Perkins Goodwin & Co., *Georgia,* Sundsvall, 150 bls. sulphate, 25 tons; Gottesman & Co. Inc., *Georgia,* Sundsvall, 1,500 bls. sulphite, 250 tons; Central Hanover Bank Trust Co., *Georgia,* Halmstad, 969 bls. sulphite; Gottesman & Co. Inc., *Weser,* Hamburg, 117 bls. sulphite, 23 tons; ———, *Weser,* Bremen, 450 bls. mechanical pulp; ———, *Washington,* Hamburg, 680 bls. wood pulp, 17 tons; Parsons & Whittemore, Inc., *Washington,* Hamburg, 112 bls. wood pulp, 20 tons; A. Giese & Son, *Burgerdyk,* Rotterdam, 50 bls. wood pulp; Bulkley Dunton & Co., *Burgerdyk,* ———, 810 bls. wood pulp; Bulkley Dunton & Co., *Schwanheim,* ———, 125 bls. wood pulp.

WOOD PULP BOARDS

———, *Burgerdyk,* Rotterdam, 132 bdls.

WOOD PULP PASTE BOARDS

———, *Washington,* Hamburg, 95 cases.

ALBANY IMPORTS

WEEK ENDING DECEMBER 12, 1936

Price & Pierce, Ltd., *Schwanheim,* ———, 8,100 bls. sulphite; Pagel Horton & Co. Inc., *Schwanheim,* ———, 13,900 bls. sulphite, 2,500 bls. kraft.

PORTLAND IMPORTS

WEEK ENDING DECEMBER 12, 1936

Bulkley Dunton & Co., *Hammaren,* ———, 3,200 bls. wood pulp, 660 tons; The Borregaard Co. Inc., *Hammaren,* Halmstad, 1,500 bls. sulphite; Perkins Goodwin & Co., *Hammaren,* Halmstad, 2,675 bls. sulphite; Perkins Goodwin & Co., *Hammaren,* Gothenburg, 1,200 bls. chemical pulp; Perkins Goodwin & Co., *Hammaren,* Gothenburg, 140 bls. sulphate; The Borregaard Co. Inc., *Hammaren,* Gothenburg, 1,500 bls. dry pulp; Bulkley Dunton & Co., *Besholt,* ———, 4,500 bls. wood pulp; Bulkley Dunton & Co., *Etna,* ———, 5,250 bls. wood pulp; Gottesman & Co. Inc., *Etna,* Sweden, 1,175 bls. wood pulp; Gottesman & Co. Inc., *Bodoe,* Sweden, 6,000 bls. wood pulp.

NEW LONDON IMPORTS

WEEK ENDING DECEMBER 12, 1936

Price & Pierce, Ltd., *Georgia,* ———, 3,000 bls. unbleached sulphite; Gottesman & Co. Inc., *Georgia,* Sweden, 2,500 bls. wood pulp.

BOSTON IMPORTS

WEEK ENDING DECEMBER 12, 1936

The Borregaard Co. Inc., *Hammaren,* Gothenburg, 250 bls. dry pulp; ———, *Hammaren,* Gothenburg, 750 bls. dry pulp; Johaneson Wales & Sparre, Inc., *Hammaren,* Gothenburg, 150 bls. kraft soda; E. J. Keller Co. Inc., *Excambion,* ———, 172 bls. rags; International Purchasing Co., *Excambion,* Genoa, 172 coils old rope; Atkinson Haserick & Co., *Excambion,* Genoa, 16 cs. paper; Royal Manufacturing Co., *Black Hawk,* Antwerp, 74 bls. cotton waste; Brown Bros. Harriman & Co., *Black Hawk,* Antwerp, 34 bls. cotton waste; Stone & Downer Co., *Black Hawk,* Antwerp, 1 cs. parchment paper; ———, *Black Hawk,* Antwerp, 197 bls. rags, 194 bls. cotton waste; 19 bls. thread waste; American Express Co., *Black Hawk,* Antwerp, 168 rolls wrapping paper; Castle & Overton, Inc., *Burgerdyk,* Rotterdam, 250 bls. wood pulp; ———, *Burgerdyk,* Rotterdam, 128 bls. rags; ———, *West Selene,* Buenos Ayres, 334 bags casein; Gottesman & Co. Inc., *Marissa Thorden,* Finland, 500 bls. wood pulp; Bulkley Dunton & Co., *Arna,* ———, 3,900 bls. wood pulp; Bulkley Dunton & Co., *City of Flint,* ———, 500 bls. wood pulp.

PHILADELPHIA IMPORTS

WEEK ENDING DECEMBER 12, 1936

Price & Pierce, Ltd., *Georgia,* Wallvik, 450 bls. sulphite; Perkins Goodwin & Co., *Georgia,* Sundsvall, 1,200 bls. sulphite, 200 tons; Perkins Goodwin & Co., *Georgia,* Sundsvall, 900 bls. sulphate, 150 tons; Gottesman & Co. Inc., *Georgia,* Halmstad, 500 bls. sulphate; Trans-Atlantic Animal By Products Corp., *Silverash,* Bombay, 190 bls. pickers; Castle & Overton, Inc., *Paraguayo,* Buenos Ayres, 126 bls. old cottons, 83 bls. new cuttings; Castle & Overton, Inc., *Paraguayo,* Buenos Ayres, 121 bls. paper stock; ———, *Venice Maru,* Kobe, 425 bls. rags; Chase National Bank, *Venice Maru,* Kobe, 499 bls. rags; American Over Ocean Corp., *Venice Maru,* Kobe, 95 bls. rags; E. J. Keller Co. Inc., *Venice Maru,* ———, 600 bls. rags; Chase National Bank, *Venice Maru,* Yokohama, 334 bls. rags; E. J. Keller Co. Inc., *Burgerdyk,* ———, 662 bls. rags; ———, *Burgerdyk,* Rotterdam, 243 bls. rags; M. Sone, Goslar, Hamburg, 354 bls. wood pulp.

(Continued on page 52)

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Tyrone, Pennsylvania
Williamsburg, Pennsylvania
Cass, West Virginia

New York Market Review

Office of the PAPER TRADE JOURNAL,
Wednesday, December 16, 1936.

Business in the local paper market continues lively. Demand for the various grades of paper is well sustained. Sales forces of the leading paper organizations are more active than ever. Prices are holding to formerly quoted levels without difficulty. In some instances, higher quotations are indicated.

The position of the newsprint paper market is improving. News Print Service Bureau Statistics reveal that production in Canada during November amounted to 285,771 tons and shipments to 293,075 tons. The output in the United States was 19,853 tons and shipments 80,221 tons. Newfoundland produced 28,201 tons.

Conditions in the fine paper market are better. Demand for book, cover, bond and ledger papers is persistent. Prices are steady to firm. Tissues are moving into consumption in good volume. The coarse paper market is displaying strength. Activity in the paper board market is better than usual at this time of year.

Mechanical Pulp

The ground wood pulp market is exhibiting a strong undertone. Manufacturing operations are being speeded up to make up for lost time during the recent long summer drought. Demand for both domestic and imported mechanical pulp is fairly active. Prices are holding to schedule, in most instances.

Chemical Pulp

Considerable tonnage of domestic and imported chemical pulp is being booked for 1938 delivery. At the present time the demand is in excess of the supply and, consequently, prices are firmer. Bleached sulphite is now quoted at from $2.70 to $3.50 and easy bleaching sulphite at from $2.40 to $2.75, on dock, Atlantic ports.

Old Rope and Bagging

The old rope market is stronger. Demand for domestic and imported old manila rope is better. Small mixed rope is fairly active. Old rope quotations are firm. The position of the bagging market is improving. Gunny and scrap bagging are displaying strength, while roofing bagging is steady.

Rags

Paper mill interest in new and old domestic rag is more in evidence. Cotton cuttings are in persistent request, especially No. 1 white shirt cuttings, which are required both for domestic and export account and are now quoted at from 8.00 to 8.25, f.o.b. New York. Roofing grades are stronger.

Waste Paper

The paper stock market is steadier. Board mill demand for the lower grades continues brisk, with the result that quotations on strictly folded news and No. 1 mixed paper are firm. The higher grades of waste paper are holding up well. Book stock is stronger. Prices are generally holding to the schedule formerly quoted.

Twine

Sentiment in the local twine market remains optimistic. The various varieties are in excellent demand and this activity should continue until after the Yuletide holidays, at least. While no further price changes have been reported, the market is still very firm.

IMPORTS OF PAPER AND PAPER STOCK

(Continued from page 50)

CAMDEN IMPORTS

WEEK ENDING DECEMBER 12, 1936

Price & Pierce, Ltd., *Georgia,* Wallvik, 1,500 bls. sulphate.

BALTIMORE IMPORTS

WEEK ENDING DECEMBER 12, 1936

Ralli Bros., *Silverash,* Karachi, 500 bls. glue stock; Congoleum Nairn Co., *Venice Maru,* Kobe, 334 bls. rags; Scherman Bros., *Venice Maru,* Kobe, 100 bls. rags; Gottesman & Co. Inc., *Kelkheim,* Sweden, 2,000 bls. wood pulp; Gottesman & Co. Inc., *Sagoporack,* Sweden, 600 bls. wood pulp; Price & Pierce, Ltd., *Sagoporack,* Sweden, 810 bls. bleached sulphite; Price & Pierce, Ltd., *Kelkheim,* ———, 3,900 bls. mechanical pulp, 3,900 bls. unbleached sulphite; Bulkley Dunton & Co., *Kelkheim,* ———, 625 bls. wood pulp; Bulkley Dunton & Co., *Sagoporack,* ———, 450 bls. wood pulp; Bulkley Dunton & Co., *Dalhem,* ———, 5,450 bls. wood pulp; Pagel Horton & Co. Inc., *Kelkheim,* Sweden, 2,100 bls. sulphite.

NORFOLK IMPORTS

WEEK ENDING DECEMBER 12, 1936

Price & Pierce, Ltd., *Milos,* ———, 3,000 bls. unbleached sulphite.

NEWPORT NEWS IMPORTS

WEEK ENDING DECEMBER 12, 1936

Bulkley Dunton & Co., *Dalhem,* ———, 7,689 bls. wood pulp; Pagel Horton & Co. Inc., *Kelkheim,* Sweden, 3,177 bls. sulphite.

NEW ORLEANS IMPORTS

WEEK ENDING DECEMBER 12, 1936

M. Sone, *Braheholm,* Sundsvall, 780 bls. wood pulp; Pagel Horton & Co. Inc., *Braheholm,* Sweden, 2,485 bls. sulphite.

SAN FRANCISCO IMPORTS

WEEK ENDING DECEMBER 12, 1936

Engberg Wallpaper Co., *Weser,* Bremen, 4 cs. wall paper; Jay Madden Corp., *Weser,* Bremen, 342 rolls newsprint.

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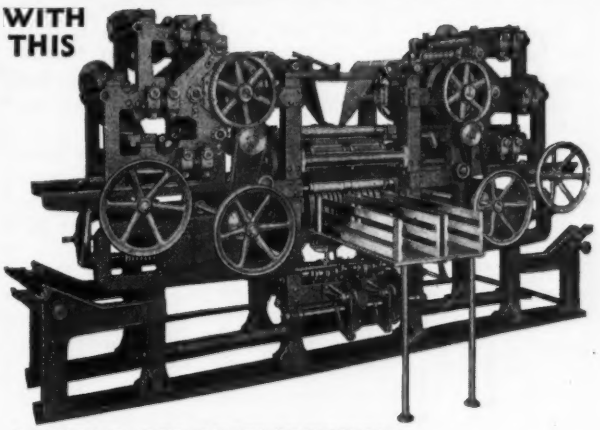

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HOLYOKE, MASSACHUSETTS

Miscellaneous Markets

Office of the PAPER TRADE JOURNAL,
Wednesday, December 16, 1936.

BLANC FIXE.—Conditions in the blanc fixe market are fairly satisfactory. Prices are holding to schedule. The pulp is quoted at from $42.50 to $45 per ton, in bulk; while the powder is selling at from 3½ to 3¾ cents per pound, in barrels, at works.

BLEACHING POWDER.—The position of the bleaching powder market is practically unchanged. Shipments against contract are proceeding regularly. Prices remain steady to firm. Bleaching powder is quoted at from $2 to $2.25 per 100 pounds, in drums, at works.

CASEIN.—The casein market continues strong. Domestic standard ground is quoted at 18 and finely ground at 18½ cents; while French and Argentine standard ground are selling at 17¾ and finely ground at 18 cents per pound, all in bags, car lot quantities.

CAUSTIC SODA.—Paper mill demand for caustic soda is fairly persistent. The contract movement is normal. Solid caustic soda is still quoted at from $2.55 to $2.60; while the flake and ground are selling at from $2.95 to $3 per 100 pounds, in drums, at works.

CHINA CLAY.—The china clay market is exhibiting a strong undertone. Contract shipments are moving in good volume. Imported china clay is quoted at from $13 to $21 per ton, ship side; while domestic paper making clay is selling at from $6.50 to $12 per ton, at works.

CHLORINE.—Steadiness prevails in the chlorine market. Demand from the paper mills is well sustained. The contract movement is well up to average. Prices remain unchanged. Chlorine is quoted at from $2.15 to $2.25 per 100 pounds, in car lots, at works.

ROSIN.—The rosin market continues firm. Paper making gum rosin is now quoted at $10.25 and wood rosin at $9.80 per 280 pounds, gross weight, in barrels, at Savannah. Seventy per cent rosin size is selling at $4.25 per 100 pounds, in tank cars, at works.

SALT CAKE.—Demand for salt cake is brisk. Prices are holding to schedule. Salt cake is quoted at from $12 to $13; chrome salt cake at from $11 to $12 per ton, at works; while imported salt cake is selling at from $12 to $13 per ton, ship side.

SODA ASH.—The soda ash market is displaying strength. Shipments against contract are moving freely. Prices are steady. Quotations on soda ash, in car lots, at works, per 100 pounds, are still as follows: in bulk, $1.05; in bags; $1.20; and in barrels, $1.50.

STARCH.—Business in the starch market is fairly buoyant. The contract movement is seasonal. Prices remain steady and unchanged. Special paper making starch is quoted at $4 per 100 pounds, in bags; and at $4.27 per 100 pounds, in barrels, at works.

SULPHATE OF ALUMINA.—Demand for sulphate of alumina is normal for the season. Prices are holding to schedule. Commercial grades are quoted at from $1.35 to $1.60; while iron free is selling at from $2 to $2.25 per 100 pounds, in barrels, at works.

SULPHUR.—The sulphur market is steady. Yearly contracts are quoted at $18 per long ton, on orders of 1,000 tons, or over and $20 on smaller quantities. On spot and near by car loads, the quotation is $21 per ton. All quotations are in car lots, at works.

TALC.—No radical changes transpired in the talc market during the past week. Prices are holding to schedule. Domestic talc is quoted at from $16 to $18 per ton, at eastern mines; while imported talc is selling at from $23 to $30 per ton, on dock.

Market Quotations

Paper

Rag Content Bond & Ledgers—Delivered Zone 1

	Bonds		Ledgers
100% Rag Ext. No. 1	.36		.37
100% Rag	.29	@	.30
75% Rag	.22	@	.23
65% Rag	.19	@	.20
50% Rag	.15½	@	.16½
25% Rag	.13	@	.14

Sulphite Bond & Ledgers—Delivered Zone 1

	Bonds		Ledgers
No. 1 Sulphite	7.50	@	8.50
No. 2 Sulphite	6.50	@	7.50
No. 3 Sulphite	6.00		7.00
No. 4 Sulphite	5.50		6.50
Book, B Grade, Cased			
S. & S. C.	6.10	@	6.85
S. & S. C. Litho.	6.35	@	7.10
M. F.	5.95	@	6.60
Coated and Enamel	7.15	@	8.00
Coated Litho.	7.15	@	8.00
Tissues—Per Ream—			
White No. 1	.82½	@	—
White No. 1 M. G.	.77½	@	—
White No. 1½	.62½	@	—
White No. 2	.60	@	—
Anti-Tarnish M. G.	.67½	@	—
Colored	.80	@	—
Kraft	.67½	@	—
Manila	.60	@	—
Unbleached Toilet	2.60	@	3.30
Bleached Toilet	3.94	@	5.26
Paper Towels—			
Unbleached	2.10	@	3.35
Bleached	3.30	@	3.70
Manila—			
No. 1 Jute	9.00	@	9.25
No. 2 Jute	7.75	@	8.50
No. 1 Wood	4.00	@	5.25
No. 2 Wood	3.50	@	4.00
Fibre Papers—			
No. 1 Fibre	4.25	@	5.50
No. 2 Fibre	4.00	@	4.75

(Delivered New York)

News, per ton—			
Roll, contract	41.00	@	—
Sheets	46.00	@	—
Kraft—			
No. 1 Northern	4.25	@	4.75
Standard	4.12½	@	4.25
Southern	4.00	@	—
Glazed	4.50	@	—
Striped	4.75	@	—
Boards, per ton—			
News	37.50	@	40.00
Chip	35.00	@	37.50
Sgl. Mla. Ll. Chip	50.00	@	52.50
Jute Lined Chip	50.00	@	52.50
Kraft Liners	65.00	@	67.50
White Pat. Coated	60.00	@	62.50
Binders Boards	67.00	@	75.00

Mechanical Pulp

(On Dock, Atlantic Ports)

No. 1 Imported—			
Moist	29.00	@	30.00
Dry	29.00	@	30.00
(Delivered)			
No. 1 Domestic and Canadian	29.00	@	31.00

Chemical Pulp

(On Dock, Atlantic, Gulf and West Coast Ports)

Bleached Sulphite (Domestic and Foreign)—			
Prime Bleached Sulphite	2.70	@	3.50
Prime Qualities—			
Class 1 All Prime Easy Bleaching	2.40	@	2.75
Other Than Easy Bleaching—			
Class 2 Higher than Standard	2.40	@	2.70
Class 3 Standard	2.35	@	2.50
Class 4 Lower than Standard	2.30	@	2.35

(On Dock, Atlantic Ports)

Kraft Bleached	3.00	@	3.25
Kraft Light & Strong	2.20	@	2.60
Kraft No. 1	2.10	@	2.60
Kraft No. 2	2.10	@	2.15
(F.o.b. Pulp Mill)			
Kraft Domestic	1.95	@	2.30
(Delivered)			
Soda Bleached	2.70	@	—

Add 60 cents per short ton, dock charges, for Albany; $2.00 for Lake Ports East and $3.00 for Lake Ports West of Mackinac Straits.

Domestic Rags

New Rags

(Prices to Mill f. o. b. N. Y.)

Shirt Cuttings—			
New White, No. 1	8.00	@	8.25
Silesias No. 1	6.25	@	6.50
New Unbleached	8.25	@	8.50
New Soft Blacks	3.75	@	4.00
Blue Overall	6.75	@	7.00
Fancy	3.00	@	3.25
Washables	2.25	@	2.50
Mixed Khaki Cuttings	3.50	@	3.75
O. D. Khaki Cuttings	4.25	@	4.50

Old Rags

White, No. 1—			
Repacked	3.25	@	3.50
Miscellaneous	2.75	@	3.00
White, No. 2—			
Repacked	2.25	@	2.50
Miscellaneous	1.75	@	2.00
Thirds and Blues—			
Repacked	2.00	@	2.25
Miscellaneous	1.90	@	2.00
Roofing Rags—			
No. 1	Nominal		
No. 2	1.65	@	1.70
No. 3 (bagging)	1.50	@	1.55
No. 4	1.50	@	1.60
No. 5A	1.40	@	1.50

Foreign Rags

New Rags

New Dark Cuttings	2.25	@	2.50
New Mixed Cuttings	2.00	@	2.25
New Light Silesias	5.50	@	5.75
Light Flannelettes	5.50	@	5.75
New White Cuttings	7.00	@	7.50
New Light Oxfords	4.00	@	4.50
New Light Prints	3.00	@	3.25

Old Rags

No. 1 White Linens	7.50	@	8.00
No. 2 White Linens	6.50	@	7.00
No. 3 White Linens	4.50	@	5.00
No. 4 White Linens	2.25	@	2.50
No. 1 White Cotton	4.25	@	4.75
No. 2 White Cotton	3.25	@	3.75
No. 3 White Cotton	2.50	@	2.75
No. 4 White Cotton	1.90	@	2.15
Extra Light Prints	2.00	@	2.25
Ord. Light Prints	1.75	@	1.85
Med. Light Prints	1.55	@	1.65
Dutch Blue Cottons	2.25	@	2.50
French Blue Linens	3.50	@	4.00
German Blue Linens	2.50	@	2.75
German Blue Cottons	2.00	@	2.25
Checks and Blues	2.00	@	2.25
Linsey Garments	2.15	@	2.25
Dark Cottons	1.90	@	2.10
Old Shopperies	1.75	@	2.00
New Shopperies	1.75	@	2.00
French Blues	2.25	@	2.50

Old Rope and Bagging

(Prices to Mill f. o. b. N. Y.)

Gunny No. 1—			
Foreign	2.20	@	2.10
Domestic	2.15	@	2.25
Wool Tares, light	1.50	@	1.75
Wool Tares, heavy	1.85	@	2.05
Bright Bagging	1.70	@	1.75
Manila Rope—			
Foreign	2.75	@	3.00
Domestic	3.00	@	3.25
Jute Strings	2.75	@	3.00
Sisal Strings	2.60	@	2.75
Mixed Strings	Nominal		

Old Waste Papers

(F. o. b. New York)

Shavings—			
White Envelope Cuttings	2.60	@	2.70
Ordinary Hard White No. 1	2.25	@	2.35
Hard White No. 2	2.10	@	2.20
Soft White No. 1	2.00	@	2.10
Flat Stock—			
Stitchless	.80	@	.95
Over issue Mag.	.85	@	.95
Solid Flat Book	.75	@	.80
Crumpled No. 1	.50	@	.55
Ledger Stock	.95	@	1.00
New B. B. Chips	.30	@	.35
Manilas—			
New Env. Cut	1.75	@	1.85
New Cuttings	1.35	@	1.45
Old Kraft Machine—			
Compressed bales	1.15	@	1.30
News—			
No. 1 White News	1.25	@	1.35
Strictly Overissue	.60	@	.70
Strictly Folded	.50	@	.55
No. 1 Mixed Paper	.45	@	.50

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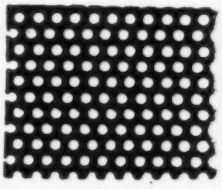

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(F. o. b. Mill)

(Soft Fibre)

Coarse Polished—			
India	.14¾	@	.17¼
Belg. White Hemp	.15¾	@	.19¼
India Compress	.15¼	@	.15¾
Fine Polished—			
Fine India	.21	@	.23
Unpolished—			
Box	.10¾	@	.11¾
Paper Makers	.10½	@	.12¾
Tube Rope	.11½	@	.14
Wall Paper	.12½	@	.13¾
Wrapping	.16	@	.20
Soft Fiber Rope	.13¾	@	.14¼
(Hard Fibre)			
Bond	.12	@	.20½
Anchor	.11½	@	.13
Manila	.21	@	.28

CHICAGO

Paper

(F. o. b. Mill)

Rag Bond	.12	@	.40
Water Marked Sulphite Bond	.06¾	@	.11
Sulphite Bond	.05½	@	.07¼
Superfine Writing	.18	@	.24
No. 1 M. F. Book	.06½	@	.07¼
No. 2 M. F. Book	.05¼	@	.06¼
No. 1 S.&S.C. Book	.06¾	@	.07¾
No. 2 S.&S.C. Book	.05¾	@	.06½
Coated Book	.07	@	.12
Coated Label	.07	@	.08½
No. 1 Manila	.04¼	@	.05¾
No. 1 Fibre	.04¾	@	.05¼
No. 2 Manila	.04¼	@	.04¾
Butcher's Manila	.03¼	@	.03¾
No. 1 Kraft	4.75	@	5.00
Southern Kraft	3.88	@	4.25
No. 2 Kraft	3.88	@	4.25
Wood Tag Boards	.04¼	@	.06¼
Sulphite Screenings	.03	@	.03¼
Manila Tissue	.05¾	@	.07
White Tissue	.07	@	.09

(Delivered Central Territory)

News, per ton—			
Rolls, contract	42.00	@	—
Sheets, open	47.00	@	—
Boards, per ton—			
Plain Chip	46.50	@	—
Solid News	50.00	@	—
Manila Lined Chip	55.00	@	—
Patent Coated	65.00	@	—
Container Lined—			
85 Test, per 1000 sq. ft.			1.70
100 Test, per 1000 sq. ft.			1.85

Old Papers

(F. o. b. Chicago)

Shavings—			
No. 1 White Envelope Cuttings	1.70	@	2.00
No. 1 Hard White	1.40	@	1.65
No. 1 Soft White	1.25	@	1.50
Ledger & Writings	.60	@	.70
Solid Books	.50	@	.60
Blanks	1.00	@	1.05
Kraits	.80	@	.90
New Kraft Cuts	1.20	@	1.30
Manila Env. Cuts	1.25	@	1.30
Ex. No. 1 Manila	.90	@	1.00
Print Manila	.40	@	.50
Overissue News	.40	@	.45
Old Newspapers—			
No. 1 Folded News	.42½	@	.45
No. 1 Mixed Paper	.25	@	.30
Roofing Stocks—			
No. 1	30.00	@	—
No. 2	28.00	@	—

PHILADELPHIA

Paper

Rag Content Bond & Ledgers— Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers— Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.75	8.75
No. 2 Sulphite	6.75	7.75
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, M. F.	5.00	@	—
Book, S. S. & C.	5.25	@	—
Book, Coated	6.15	@	—
Coated Lithograph	6.15	@	—
No. 1 Jute Manila	10.50	@	—
Manila Sul., No. 1	6.75	@	—
Manila No. 2	4.25	@	—
No. 1 Kraft	6.00	@	—
Southern Kraft	5.00	@	—
News Print Rolls	40.00	@	—
Straw Board	40.00	@	45.00
News Board	40.00	@	—
Chip Board	37.50	@	—
Wood Pulp Board	70.00	@	85.00
Binder Boards—			
No. 1, per ton	75.00	@	80.00
No. 2, per ton	70.00	@	75.00
Carload lots	65.00	@	70.00
Tarred Felts—			
Regular	52.25	@	54.25
Slaters (per roll)	.84	@	.94

Domestic Rags (New)

(Price to Mill, f. o. b. Phila.)

Shirt Cuttings—			
New White, No. 1.	.08	@	.08½
New White, No. 2.	.04½	@	.05
Light Silesias	.05½	@	—
Silesias, No. 1	.04½	@	.05
Black Silesias, soft.	.03½	@	.04
New Unbleached	.06	@	—
Washable, No. 1	.02	@	.02½
Blue Overall	.07	@	.07½
Cottons—According to grades—			
Washable, No. 2	.02½	@	.04½
New Blue	.02	@	.02½
Fancy	.03	@	—
New Black Soft	.04	@	.04½
New Light Seconds	.03½	@	.04
New Dark Seconds	2.00	@	2.25
Khaki Cuttings—			
No. 1 O. D.	.04	@	.04½
No. 2 Mixed	.03½	@	.04
Corduroy	.02	@	.02¼
New Canvas	.04	@	.04½
New Black Mixed	.02	@	.02¼

Domestic Rags (Old)

White No. 1—			
Repacked	4.00	@	4.50
Miscellaneous	3.00	@	3.50
Thirds and Blues—			
Miscellaneous	2.00	@	2.25
Repacked	2.50	@	2.75
Black Stockings (Export)	4.50	@	5.00
Roofing Stock—			
Foreign No. 1	2.20	@	2.25
Domestic No. 1	1.50	@	1.60
Domestic No. 2	1.40	@	1.50
Roofing bagging	1.10	@	1.20

Bagging

(F. o. b. Phila.)

Gunny, No. 1—			
Foreign	2.00	@	—
Domestic	2.25	@	—
Manila Rope	2.75	@	—
Sisal Rope	2.25	@	2.35
Mixed Rope	1.00	@	1.10
Scrap Burlaps—			
No. 1	2.25	@	2.50
No. 2	1.00	@	1.10
Wool Tares, heavy	3.25	@	3.50
Mixed Strings	1.00	@	1.10
No. 1 New Light Burlap	3.00	@	3.50
New Burlap Cuttings	2.50	@	2.75

Old Papers

(F. o. b. Phila.)

Shavings—			
No. 1 Hard White	2.30	@	2.40
No. 2 Hard White	2.10	@	2.20
No. 1 Soft White	1.90	@	2.00
No. 2 Soft White	1.40	@	1.45
No. 1 Mixed	—	@	.85
Solid Ledger Stock	1.50	@	1.60
Ledger Stock, white	1.15	@	1.20
Ledger Stock, colored	.85	@	.90
No. 1 Books, heavy	.70	@	.75
Manila Cuttings	1.80	@	1.90
Print Manila	.55	@	.60
Container Manila	.55	@	.60
Kraft Paper	1.10	@	1.20
No. 1 Mixed Paper	.45	@	.50
Straw Board Chip	.40	@	—
Binders Board Chip	.40	@	—
Corrugated Board	.60	@	.65
Overissue News	.70	@	.75
Old Newspapers	.50	@	.55

BOSTON

Paper

Rag Content Bond & Ledgers— Delivered Zone 1

	Bonds	Ledgers
100% Rag Ext. No. 1	.36	.37
100% Rag	.28	.29
75% Rag	.21	.22
65% Rag	.18	.19
50% Rag	.15	.16
25% Rag	.12½	.13½

Sulphite Bond & Ledgers— Delivered Zone 1

	Bonds	Ledgers
No. 1 Sulphite	7.50	8.50
No. 2 Sulphite	6.50	7.50
No. 3 Sulphite	6.00	7.00
No. 4 Sulphite	5.50	6.50

F.o.b. Mill

Book, Super	.06	@	.09
Book, M. F.	.05½	@	.08½
Book, Coated	.08½	@	.18
Coated Litho	.09	@	.12
Jute Manila No. 1	.11	@	.13
Manila, Sul. No. 1	.04¾	@	.06¼
Manila, Sul. No. 2	.03¾	@	.04½
No. 1 Kraft	.04¼	@	—
No. 2 Kraft	.04¼	@	—

(Delivered New England points)

Southern Kraft	.04	@	—
News Print Rolls	39.50	@	—
Straw Board, rolls	.009	—	@35.00
Filled News Board	42.50	@	45.00
Chip Board	40.00	@	42.50
Single Manila Lined Chip	50.00	@	55.00
Single White, Patent Coated News Board (Bender)	60.00	@	65.00
Wood Pulp Board	70.00	@	75.00
Binder Boards (Standard Grade)	67.00	@	75.00

Old Papers

(F. o. b. Boston)

Shavings—			
No. 1 Hard White	2.20	@	2.35
No. 1 Soft White	1.85	@	2.15
No. 2 Mixed	.75	@	.80
Solid Ledger Books	1.50	@	1.75
Overissue Ledger Stock	1.15	@	1.30
Mixed Ledgers	.85	@	.90
No. 1 Books, heavy	.80	@	.90
No. 1 Books, light	.50	@	.60
Crumpled Stitchless Book Stock	.50	@	.60
Manila Env. Cuttings	1.50	@	1.60
Manila Env. Cuttings, extra quality	1.75	@	1.85
No. 1 Old Manila	.60	@	.65
White Blank News	1.10	@	1.15
No. 1 Kraft	1.25	@	—
Mixed Papers	.42½	@	.47½
Print Manila	.60	@	.70
Container Manilas	.27½	@	—
Old Newspapers	.50	@	.55
Overissue News	.50	@	.65
Box Board Chips	.40	@	.45
Corrugated Boxes	.50	@	.60
Kraft corrugated boxes	.95	@	1.00
Screening Wrappers	40	@	.45

Bagging

(F. o. b. Boston)

Manila Rope—			
Foreign	3.00	@	—
Domestic	2.87½	@	—
Transmission Rope	1.25	@	1.35
Jute Rope	2.12½	@	2.25
Jute Carpet Threads	1.75	@	2.00
Gunny No. 1—			
Foreign	2.05	@	2.15
Domestic	1.90	@	2.00
Bleachery Burlap	4.25	@	4.50
Scrap Burlap—			
Foreign	2.00	@	2.05
Domestic	1.80	@	1.90
Scrap Sisal	2.00	@	2.10
Scrap Sisal for Shredding	2.10	@	2.35
Wool Tares, heavy	1.90	@	2.00
New Burlap Cuttings	2.25	@	2.50
Australian Wool Pouches	2.75	@	3.00
Heavy Baling Bagging	2.00	@	2.50
Paper Mill Bagging	1.75	@	1.80
Bagging No. 2	1.30	@	1.35

Domestic Rags (New)

(F. o. b. Boston)

Shirt Cuttings—			
New Light Prints	.03½	@	.03⅞
New White No. 1	.07¾	@	.08¼
New White No. 2	.05	@	.05½
Silesias No. 1	.06¾	@	.07
New Black Silesias	.04	@	.04¼
Soft Unbleached	.08½	@	.08¾
Blue Chevoit	.07	@	.07¼
Fancy	.03¼	@	.03½
Washable	.02¾	@	.03
Blue Overalls	.06¾	@	.07
New Black [illegible]			
Khaki Cuttings	.04	@	.04½
O. D. Khaki	.04½	@	.04¾
Corduroy	.03	@	.03¼
New Canvas			
B.V.D. Cuttings	.08	@	.08¼

Domestic Rags (Old)

(F. o. b. Boston)

Canvas	.04½	@	—
White No. 1—			
Repacked	—	@	2.75
Miscellaneous	2.50	@	2.75
White No. 2—			
Repacked	1.90	@	2.00
Miscellaneous	2.00	@	2.25
Twos and Blues	1.75	@	2.00
Thirds and Blues—			
Repacked	1.37½	@	1.75
Miscellaneous	1.25	@	1.62½
Black Stockings	3.90	@	4.00
Roofing Stock—			
No. 1	1.75	@	1.80
No. 2	1.65	@	1.70
No. 3	1.30	@	1.35

Foreign Rags

(F. o. b. Boston)

Dark Cottons	1.95	@	2.10
New White Shirt Cuttings	6.50	@	6.75
Dutch Blues	2.25	@	2.50
New Checks & Blues	2.50	@	3.00
Old Fustians	2.05	@	2.25
Old Linsey Garments	2.25	@	2.50
New Silesias	5.75	@	6.00

TORONTO

Paper

Bond—Delivered—			
No. 5 White	.10¾	@	—
No. 6 White	.10	@	—
No. 5 Tints	.11¾	@	—
No. 6 Tints	.10½	@	—
No. 5 Golden Rod	.12¾	@	—
No. 6 Golden Rod	.12	@	—
Ledgers—			
Ledgers, No. 1	.34½	@	—
Ledgers, No. 2	.25½	@	—
Writing	.09	@	.09½
Book—			
No. 1 M. F.	6.50	@	6.75
No. 2 M. F.	6.25	@	6.50
No. 3 M. F.	5.00	@	5.35
No. 1 S. C.	7.00	@	7.50
No. 2 S. C.	6.50	@	7.00
No. 3 S. C.	5.50	@	6.00
No. 1 Coated and Litho	12.00	@	—
No. 2 Coated and Litho	10.50	@	—
No. 3 Coated and Litho	9.50	@	—
Coated tinted	13.00	@	—
Wrapping—delivered—			
Rag Brown	4.75	@	—
White Wrap	3.50	@	—
"B" Manila	4.80	@	—
No. 1 Manila	5.40	@	—
Fiber	5.40	@	—
Kraft, M. F.	5.90	@	—
Kraft, No. 2	5.40	@	—

(F. o. b. Cars Toronto)

News, per ton—			
Rolls (contract)	Nominal		
Sheets	Nominal		

Pulp

Ground wood	27.00	@	—
Unbleached Sulphite	42.00	@	—
Book (Class 1)	58.00	@	—
Writing (Class 2)	59.00	@	—
Select (Class 3)	60.00	@	—

Old Waste Paper

(In carload lots, f. o. b. Toronto)

Shavings—			
White Env. Cut	2.00	@	2.25
Soft White	1.60	@	1.90
White Blk. News	1.25	@	1.40
Book and Ledger—			
Flat Magazine and Book Stock (old)	.80	@	.90
Light and Crumpled Book Stock	.70	@	.80
Ledgers and Writings	.90	@	1.00
Manilas—			
New Manila Cut	1.20	@	1.40
Printed Manilas	.55	@	—
Kraft	1.00	@	1.60
News and Scrap—			
Strictly Overissue	.55	@	.60
Strictly Folded	.50	@	.55
No. 1 Mixed Paper	.40	@	.45

Domestic Rags

(Price to mills, f. o. b. Toronto)

No. 1 White Shirt Cuttings	.07	@	.08¼
Fancy Shirt Cuttings	.03	@	.03½

PAPER TRADE JOURNAL

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SIXTY-FIFTH YEAR

THE INTERNATIONAL WEEKLY OF THE PAPER AND PULP INDUSTRY AND THE PIONEER PUBLICATION IN ITS FIELD

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- Toronto:
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